California JOURNAL OF EDUCATIONAL RESEARCH

Vol. I, No. 1 January 1950

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ARTHUR F. COREY
State Executive Secretary
391 Sutter Street, San Francisco, California

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California Teachers Association

ASSOCIATE EDITOR

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WELCOME: *The California Journal of Educational Research*

ROY E. SIMPSON
Superintendent of Public Instruction
California State Department of Education

THE responsibilities of the California Teachers Association lie in many fields of activity. They include maintenance of high professional standards, action in behalf of the welfare of the membership, action to maintain good public relations, publication of useful information for members of the profession, and the conducting of professional studies grounded in research. In all of these fields the California Teachers Association has maintained a constructive and effective program for many decades.

Our experience as school people in California during the years of the second World War and during the postwar years has indicated to us clearly that as the State of California enters a new era with a rapidly increasing population and a rapidly increasing importance among the United States, public education in the State is also changing. The huge new pupil population in the public schools brings with it many problems relating to the expansion of our programs and services, curriculum development, financial support by state and local agencies, provision of adequate school housing, and the recruiting and certifying of sufficient numbers of qualified teachers.

In this period, we have observed on many occasions the necessity of having facts about these changes ready for presentation to the people of our communities and of the State, to their civic and service organizations, and to agencies of government that work with school authorities on many public school problems. We have found that to perform the research necessary to obtain facts about all aspects of public education is not in itself enough. We have found that it is very important that we should have summaries of our research and our studies in published form so that they may be readily available to all interested citizens and citizen groups when questions relating to public education are raised.

For this reason and others, the decision of California Teachers Association to publish the *California Journal of Educational Research* is one of the most important CTA has made in recent years. The intent of the State Advisory Council on Educational Research, a representative body that is to serve as editorial board of the new publication, is that the Journal will serve as a much-needed clearing house of educational research information from California and elsewhere. Those to whom the new service is especially addressed include school administrators, teachers, school research staffs, supervisors of instruction, school of education faculties, libraries, and graduate students. The plans of the editorial staff have been most carefully prepared, and I am confident that the five issues of the new Journal that will be published each year will be most welcome throughout the State and beyond its borders.

CALIFORNIA EDUCATION—How Good?

EDGAR L. MORPHET
University of California, Berkeley

JUNE 16, 1948 may well prove to be a date of unusual significance in the history of education in this country. On that date the Governors of the States, assembled in annual conference, adopted a resolution recognizing that "The education of the youth of the land is one of the fundamental duties of government, and provision of adequate and efficient machinery for that purpose is one of the prinicpal costs of government." In this resolution the Governors directed the Council of State Governments, which is the joint governmental agency established and supported by the states for service to the states, to "conduct a study and compile a report on the systems of education in the various states."

While the governors had previously, from time to time, considered various issues pertaining to education, they had never during their forty years of annual meetings so clearly recognized the significance of education nor undertaken to sponsor a study that would make available to all of them the most important facts relating to public school education in each of the states and in the nation.

It was agreed that (1) the study should be started promptly so it could be completed in time to be presented at the next annual Governors' Conference scheduled for June of 1949, (2) much of the information needed would have to be obtained through the respective states and chiefly through the state departments of education, and (3) since the study was to be concerned with education, it should be planned and carried out under the immediate direction of educators acquainted with the major problems and issues in the field.

One important supplementary nationwide study in the field of school finance is now under way under the sponsorship of the U. S. Office of Education with the cooperation of the Council of State Governments and

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Dr. Edgar L. Morphet left his position last September as chief of school finance in the Division of School Administration, U. S. Office of Education, to become professor of education at the University of California, Berkeley. He previously served as director of administration and finance in the Florida State Department of Education, executive secretary of the Florida Citizens Committees on Education, and associate research director of the Council of State Governments' study of *The Forty-Eight State School Systems*. Dr. Morphet's article, the January feature, is based upon the aforementioned study.

the School of Education of the University of California. The report of this study, which should be ready for publication before the close of the current school year, will give pertinent information on school finance for 1949-50, will give a rather detailed analysis of the school finance system of each state, and will summarize major trends and developments during recent years.

Major Findings and Conclusions

The report calls attention to the following three commonly found structural defects which tend to provide serious handicaps for the educational programs in many states:

1. Constitutional and statutory provisions often serve as barriers to capable educational leadership. In many states constitutional and legal provisions still call for election of the state superintendent and of county superintendents by popular vote. Some states still have no state board of education. In many states the laws do not clearly define responsibilities and thus tend to bring about confusion and conflict.
2. The local school administrative unit structure is still quite inadequate in a large number of states. Fewer than four per cent of the local school units throughout the country are large enough to provide as many as forty teachers each. (This is considered the minimum for a satisfactorily organized local unit.) A few states even have, as a prevailing pattern, separate districts for elementary and for secondary schools.
3. Methods of distributing state school funds are hopelessly inadequate in a number of states. Some states still provide only inconsequential funds from state sources, while others distribute a large proportion of all funds on a flat-grant basis. As a result, there are great inequalities in educational opportunity in many states between wealthy and poor districts and often between urban and rural areas.

The report (p. 9) makes the following significant observation which should be of great interest and concern to school administrators and research directors throughout the states involved:

> "Underlying and abetting all of these weaknesses is a lack of facts to guide those who make state policies. The difficulties encountered in obtaining data needed for this study bear testimony to the lack of necessary records in a number of states. In some states it is almost impossible to obtain an accurate picture of the qualifications of teachers or the variations in current expenses among the several districts. State responsibility for education cannot be exercised properly unless facts are available about local provisions for education throughout the state and the effect of state policies and practices upon these provisions."

And How About California Schools?

School and lay leaders of California should be interested in singling out from *The Forty-Eight State School Systems* some of the important facts and ideas pertaining to the school system of this State. What strengths and weaknesses are shown? What problems seem to stand out as needing careful attention? What studies should be made as a means of throwing further light on these problems? What basic difficulties in organization or structure seem to exist and what steps should be taken to help to solve these problems?

First it should be noted that California is one of the states which seems to have difficulty in obtaining and making available promptly the facts concerning certain aspects of education in the state. From the tables in the Appendix of *The Forty-Eight State School Systems*, it will be seen that several items for California have only the comment "no information"; for other items only estimates are used. In some instances the item which is omitted or estimated may not be of much significance; in others it is undoubtedly important at least from the point of view of obtaining a picture of the situation throughout the country. To the extent that any important item of information is not available, the basis for studying the situation and planning improvements is limited.

One explanation of the missing or estimated items in the case of California is undoubtedly the complicated local school district system and the difficulty of obtaining comparable information from the numerous small districts in the State. Another explanation may lie in the fact that some items in the record and reporting system of the State are not geared to those used in most other states. This explanation, however, should not be accepted as sufficient justification for omitting the items, but rather should be recognized as a challenge to the people of the State to take whatever steps are necessary to overcome the difficulty.

Educational Load

California in 1947-48 had 1,687,000 children of school age (5 to 17 years), the third largest number of any state. New York had the largest number, 2,385,000, and Pennsylvania had the second largest, 2,024,000.

While the total number of children of school age in the State indicates the magnitude of the problem to be faced, it does not show what is commonly called the school load and gives no basis for comparison with other states except in terms of total number of children. The number of children per thousand of the total population is a more significant measure.

In 1947-48 California had only 172 children per thousand of the total population. The average for all states was 205. Only three states had a smaller number of school-age children per thousand in the total population than California. These were New Jersey, 166; New York, 168; and Connecticut, 171. The largest number was in New Mexico, 283 per thousand.

The ratio between the public school enrollment and the school age population in California was higher than the average for all states. The ratio in California was 84.9 per cent; for all states, 81.6 per cent. This ratio is effected by the proportion of children who attend and continue through school and also by the proportion in non-public schools.

Ability to Support the Program

The measures most commonly used to determine the ability of a state to support its school program are the per capita income, the income per school-age child, and the income per child in average daily attendance in the public schools. An annual estimate is made of the income of the people in each state by the U. S. Department of Commerce. The population estimates are provided by the U. S. Bureau of the Census and the average daily attendance figures are obtained from each state. On the basis of the per capita income of the total population, California in 1947-48 ranked sixth among the states. The per capita income of the state was $1,643. Nevada ranked first with a per capita income of $1,842, and Mississippi was lowest with a per capita income of only $659. The average for all states was $1,318.

A better measure of ability to support the potential school load is the income per child of school age (5 to 17). On this basis, California had an income of $9,556 per child and ranked fourth among the states. New York was highest with an income per child of $10,742; Nevada next with an income of $10,240; and Connecticut third with an income of $9,789. Mississippi again was low with an income per child of only $2,374. The average for all states was $6,436.

The income per pupil in average daily attendance should theoretically be a better measure of the ability to support the actual school load than the other bases, but unfortunately the average daily attendance figures are not comparable for all states. For example, the average daily attendance reported for California includes both kindergarten and junior college pupils, while some states have neither public kindergarten nor junior college pupils and a few states still have most of their pupils in an eleven grade system. The situation has been even more seriously complicated by the comparatively recent decision in California to include average daily attendance for children who are absent for legitimate reasons. On the basis of the available figures on income per pupil in average daily attendance in the public schools, California appeared to rank 10.5 with an income of $10,599 against an average income of $8,981.

Effort to Support Public Schools

The effort made by the citizens of a state to support their public school program may be measured fairly accurately by finding the ratio between the revenue provided for public schools and the income of the people for any given year. Public school expenditures may also be used, but expenditures ordinarily do not constitute as satisfactory or reliable a measure as revenues, because expenditures may not include all of the available revenues or may include some balances carried over from previous years.

The following tabulation provides some interesting information regarding effort to support schools as represented by the ratio between the income of the people and the public school revenue in 1937-38 and ten years later, in 1947-48:

	1937-38		1947-48	
State with Highest Effort	South Dakota	5.8	New Mexico	3.6
California	(Rank 14.5)	3.5	(Rank 31)	2.1
State with Lowest Effort	Connecticut and Delaware	2.1	Illinois	1.4
Median Effort		3.1		2.3

Contrary to what most people seem to think, practically all states are now making a considerably lower effort to support their schools in terms of their ability than ten years ago. All states except one devoted a smaller proportion of their income to public school support in 1947-48 than in 1937-38. California dropped during that period from a rank of 14.5, with 3.5 per cent of the income devoted to the public schools, to a rank of 31 with only 2.1 per cent of its income devoted to the public schools. Thus California instead of making a relatively high effort to support its schools, as was the case ten years ago, was making less than average effort in 1947-48.

Current Expense Per Pupil

Although there are some differences in the quality of education which can be provided in the various states for a given expenditure, it is commonly recognized that the current expense, including interest, per pupil in average daily attendance represents a fairly valid measure of the level of education which is afforded. There has been a marked increase in the current expense per pupil in all states, but the actual increase, when 1947-48 expenditures are expressed in terms of the 1935-39 dollar value, is only about $22 per pupil.

In 1937-38 New York had the highest current expense per pupil, $159.67. That year California was second with an expenditure of $140.34 and Mississippi was low with an expenditure of only $28.35. The median was $82.79. In 1947-48 New Jersey was high with a current expenditure of $260.80; California seems to have dropped to fifth with $223.45 (estimated) and Mississippi was still low with an expenditure of $66.54. The median was $178.71.

In terms of the equivalent dollar values, the current expenditure per pupil in average daily attendance in California seems to have actually decreased in the amount of $5.12 per pupil between 1937-38 and 1947-48. However, because of the change in the plan for determining average daily population in California was higher than the average for all states. The ratio in California was 84.9 per cent; for all states, 81.6 per cent. This ratio is effected by the proportion of children who attend and continue through school and also by the proportion in non-public schools.

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Miscellaneous Items

An effort was made to determine the relative position of the various states on value of school property, school indebtedness, and expenditures per pupil in average daily attendance for textbooks and teaching supplies, for capital outlay, and for interest paid. The latest figures available for California on each of these items were for 1945-46; therefore, they are not comparable with the 1947-48 figures provided by most other states. However, the 1945-46 figures for California were higher than the corresponding figures for most other states for 1947-48. The value of school property in California per pupil was given as $549; the median for all states, $401. School indebtedness per pupil in California was $154, the median, $71.88. The expenditure reported for textbooks and teaching supplies was $13.56 for California; the median was $5.43. Medians were not computed for capital outlay expenditures and interest payments because of the marked variations.

In California, the public junior college enrollment in 1947-48 was equal to 70.1 per cent of the high school graduates for that year. This was by far the highest ratio found for any state. The next highest was in Washington where the ratio was 44.6. The ratio between the knidergarten and elementary enrollment in California was 10.1. This was fifth highest. However, for some reason, perhaps largely because of the prevailing 8-4 organization in the State, the ratio reported for California between secondary enrollment and the enrollment in grades K to 12 was only 23.6, slightly below the average for all states which was 24.3.

State Organization

The facts provided show that the State Board of Education of California has relatively broad powers. California is in the relatively fortunate position of having only two state boards for public education: the State Board of Education being responsible for everything through the junior colleges and the state colleges, and the Board of Regents having responsibility for the University. However, there are about five states that have only one state board of education for all phases of education.

The terms of the state board members in California are among the shortest found in any of the states, — four years. In most other states the terms range from five on up to thirteen years. It is commonly recognized that the terms of state board members should probably be about nine years in length and should be staggered so as to help to assure that no governor will be in position to control the state board.

The position of the chief state school officer is considered one of the most important and potentially one of the most significant educational positions in each state. Unfortunately, the chief state school officer has been elected by popular vote in slightly more than one half of the states up to the present time. However, all state survey reports during recent years have recommended appointment by a properly constituted state board of education. The Chief State School Officers themselves, at their annual meeting in 1948, recommended appointment as the best method for selecting chief state school officers. Massachusetts, Missouri, Texas, and Colorado have changed from the elective to the appointive method during recent years and such a change is being seriously considered in several others.

In California the chief state school officer is still elected by popular vote. There is thus no effective plan of assuring continuing cooperation between the chief state school officer and the state board of education or of assuring that the person selected will be the best qualified person available. The salary paid the chief state school officer in California fortunately has been increased to the place where it now ranks among the five highest.

School Districts or Local School Administrative Units

California is one of several states having a large proportion of small school districts or local school administrative units. Of the 2,349 districts in the State in 1947-48, 67.6 per cent had nine or fewer teachers and only 9.8 per cent had forty or more teachers. California is also one of a relatively small number of states having a large proportion of separately organized elementary, high school, and junior college districts. Of the 2,349 districts in the State, slightly more than two thousand had elementary schools only.

In connection with this study an effort was made to determine practices in each state which tend to encourage district reorganization and factors which tend to retard district reorganization. Most states listed a number of such factors, but no such listing was available for California. However, a report recently made by the Commission on School Districts[1] shows definitely that there are a number of factors which have operated to discourage district reorganization in California. It seems fairly certain that unless these factors can be modified and plans can be worked out for effecting more adequate organization of districts, many California schools are likely to continue to be handicapped.

No information was provided concerning the composition or responsibilities of the county board or of the county superintendency in California. However, California is one of the states providing for election of county superintendents by popular vote. It is generally recognized that selection of the county superintendent by a properly selected county board is more likely to produce satisfactory results than election by popular vote. The evidence seems to indicate that the county board should be a lay rather than a professional board and should definitely be responsible for policy decisions for all phases of the program.

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[1] Findings and Recommendations of the Commission on School Districts, State of California, 1949.

Teaching Personnel

California stands near the top of the list of states in terms of training and salaries of teachers. Only 3 per cent of the California teachers were reported as having less than two years of college training and 23.0 per cent with less than four years. The averages for all states were respectively 12.9 per cent and 40.9 per cent. Seventy-seven per cent of California teachers were reported as holding bachelor's or higher degrees; 52 per cent were reported to hold master's or higher degrees.[2] A few states had a higher percentage than California of teachers who were college graduates, but no state reported a larger percentage of teachers holding master's or higher degrees. The average for all states of teachers who were college graduates was 59.1, but the average of master's degree holders was only 14.4 per cent.

California also stands near the top in terms of salaries paid teachers. The average salary reported for California was $3,400; that for New York, the only other state with a higher average salary than California, was $3,450. The average for all states was $2,440.

California also seems to lead the nation in the ratio of the number of elementary teachers being prepared in four-year programs to the estimated number needed to replace elementary teachers withdrawing from service in 1947-48. The ratio in California was 90 and in New York, the next highest state, was 70. California, however, as is true of all other states, has a large accumulated deficiency in the elementary grades and will need a much larger number of teachers to meet this deficiency during the next few years than the number being prepared. Many additional teachers will also be required because of the very rapid population growth. The number being prepared for secondary schools seems to be much more nearly adequate to meet the needs.

Finance

The amount estimated to be needed in California to provide school plant facilities during the next five years is $1,255,000,000. The largest single amount reported by any state, New York, was only slightly higher, $1,261,822,000. California is one of about a dozen states making fairly substantial provisions through state funds to assist with local school plant construction programs. However, the state aid for capital outlay in California thus far has been only on an emergency basis and is so far short of the needs, even when the recently voted $250,000,000 in bonds for capital outlay purposes is included, that it is evident the problem will have to be given further careful consideration in the near future if a satisfactory solution is worked out.

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[2] This apparently includes all persons certificated on the basis of five or more years of college training and therefore may not be comparable with data from most other states.

The percentage of all school revenues derived from Federal, state, county, and local sources in California and the median for all states is shown by the tabulation below:

	California	*U. S. Median*
Federal	0.4%	1.3%
State	52.0%	39.8%
County	0.9%	5.7%
Local	46.7%	53.2%

Ten years ago in California 41.3 per cent of all school revenues came from state sources. The median percentage at that time for all states was 29.6. The fact that California provides a larger percentage of funds from state sources than the typical state is reflected in the percentage of school revenue derived from property taxes. In California the percentage from property taxes was only 45.4 as compared with a median of 60.5. The percentage of school revenue derived from property taxes in 1947-48 ranged from 11.2 in Delaware to approximately 89 in Massachusetts.

California is among the states having the largest number of different state school funds. The number reported for California is 12. Only five other states reported that many different funds. Most states during recent years have reduced the separate funds or appropriations for schools to not more than five or six and two states have only two funds each.

California is also among the states distributing a large proportion of all state funds on a flat-grant basis. In California 78 per cent of all state funds were distributed on this basis in 1947-48. Only six other states distributed a larger proportion of their funds as flat grants, that is, as funds that provide the same amount per pupil or other unit regardless of the wealth of the district. California consequently is among the states distributing the smallest percentage of funds on an equalizing basis. In this State only 16.8 per cent of all state funds were distributed in 1947-48 as general purpose equalizing funds. This does not include the emergency fund for capital outlay.

California seems to be in a fortunate position with reference to its local tax levies for schools and its school budgetary procedures. In view of the fact that the people of a local school district can vote to go beyond the prescribed limit, there seems to be more leeway for levying local taxes, (that is, fewer arbitrary limitations have been imposed by the Legislature), and there is more leeway with respect to budgetary autonomy than in many other states. Several states have placed such arbitrary restrictions on tax leeway and budgetary procedures that their school programs are being greatly handicapped.

Summary

The above facts constitute only a few of those presented and discussed in *The Forty-Eight State School Systems.* They point to a number of strong points in the California school program, but also indicate several problems and weaknesses that undoubtedly need further study. The conclusions presented in the report of The Council of State Governments indicate the general direction in which each of the states might well move in most of these areas. The Governor of California, as is true of the governor of each of the other states, has a copy of this report which is recognized as an official document sponsored by the Governors' Conference. However, it should be evident that the Governor as well as members of the Legislature and other citizens of the State will need the results of additional intensive and comprehensive studies if they are to be in position to act intelligently in planning needed improvements in the program.

In some respects California's schools now stand out as among the best in the nation. There is no real reason why they should not be best in every respect. To make that possible will require greater cooperative effort and more intelligent planning on the part of both lay citizens and professional educators than ever before. Adequate funds must be provided for needed studies. Inefficiencies must be brought to light and eliminated. Problems of school district reorganization must be fearlessly solved instead of being sporadically discussed. Subsidies for preserving status quo must be discontinued. The needs of the children must always be placed above the claims of vested interests or other irrelevant considerations. When these things are done, and are done satisfactorily, another study should show that California's school program is preeminent in all respects rather than only in certain respects.

"All research is concerned with practice — at least eventually. Even so-called pure research is carried on with the implicit belief that eventually increased knowledge will lead to a better world. The peculiar characteristic of this kind of research is that the research worker is not to be asked to justify what he is doing in terms of immediate problems now facing society." Excerpt from "Research and Practice: The Case for Impure Research," by Ralph B. Spence (*Growing Points in Educational Research,* 1949 Official Report of the AERA, page 297).

THE EDITORS SAY:

We Hope You Like Us!

GREETINGS! May we introduce ourselves and share with you some of our ideas and aspirations for the *California Journal of Educational Research.* Frankly, we are not so much concerned about introducing a *new* publication as we are in influencing educators and laymen to the wider acceptance of the role of research in forwarding education.

We feel that an educational research journal has an important role to play in the improvement of educational services to the children of the State. The *California Journal of Educational Research* will not become the infallible oracle to which all problems of education shall be referred. Rather, we propose to get the results of educational research out of files and bookshelves and into the lives of children.

In a very real sense we want the Journal to be the voice of the practicing educator as well as the innovator and the experimentalist. The Journal may well become a forum for those in educational research as well as a vehicle for carrying into the classroom the results and recommendations of significant research findings.

We shall attempt to adhere to accepted standards of scientific research in reporting studies. At the same time, we expect to present material in readable style. We will look with suspicion upon anything that appears to be propaganda. We shall not cater to mere "hobbyism." Most of the articles will be limited to three pages, or 1500 words. We expect to place emphasis on research which has direct application to teaching and school situations.

In as many ways as possible, the content of the Journal will be made to serve educational progress through research reporting. We welcome articles that contribute to this end.

Digests of theses and dissertations, when approved by members of the editorial board or by faculty representatives, will constitute a continuing source of research information for our readers. Many of these studies, worthy of publication, might not otherwise come to the attention of educational consumers. While we expect to feature California research, we would be disappointed if we did not appeal also to those in other parts of the country who may wish to submit significant articles for publication in the *California Journal of Educational Research.*

The *California Journal of Educational Research* will be prepared to meet a variety of interests in education. Each issue will contain some regular departments such as: a feature article, digests of current research studies, and news and views of persons and events in the field of educational research. Special features are planned and will be included as the need and materials permit. Some of the special attractions to be found in subsequent issues will be: book reviews, a question box, bibliographies, and guest editorials.

We are proud to call attention to the feature article in this issue by Edgar L. Morphet. It merits the thoughtful study of all California school personnel. A special attraction in the May issue will be the annual classified bibliography of theses and dissertations that have been completed at California colleges and universities during the past year. This will become a regular annual feature of the Journal.

We feel fortunate in having such a fine editorial board (listed on the inside of the front cover). It will evaluate material to be published in the Journal. Both the editorial board and the editors will welcome suggestions and criticisms of the new venture. Our satisfaction will be realized in pleasing our readers.

AERA To Meet At Atlantic City

The American Educational Research Association, a department of the National Education Association, will hold its annual meeting at Atlantic City, New Jersey, on February 27 to March 1, 1950. The meeting will be held in conjunction with the annual convention of the American Association of School Administrators.

According to Dr. Frank W. Hubbard, Secretary-Treasurer, the regular AERA program will begin on Monday morning, February 27 and continue through Wednesday morning, March 1. There will be two sessions, each a half-day, excepting Monday afternoon when the annual business meeting is held. All of the sessions will be devoted to papers and panels on current research in the field of education. The banquet which will be held on Monday night, February 27, will feature Dr. Walter S. Monroe, editor of the *Encyclopedia of Educational Research.*

The purpose of the AERA is to encourage and promote the investigation of educational problems through research, publications, meetings, and like means of cooperative endeavor. Those eligible for active membership in the Association are: persons engaged in technical rsearch in education, including directors of research in school systems, instructors in educational institutions, and research workers connected with public or private educational agencies. Membership in the National Education Association is a prerequisite to membership in the AERA. Active membership dues are $7.00 per year.

Self-Evaluation at Tenth Grade Level[1]

LILLIE LEWIN BOWMAN
San Francisco Unified School District

THOSE who are responsible for the program of evaluation in the San Francisco Unified School District are well aware that tests do not exist at the present time and probably never will be made which will measure reliably the total outcome of our instructional program. It is equally true that those rare immeasurable qualities which distinguish the self-sufficient happy person from the insecure and dependent person hold a most important place among the accepted objectives of education.

There are tests, however, which have definite educational value and serve specific guidance functions. Through the work of representatives of each school level serving as a committee on evaluation, such tests have been selected. They are the tests which make up the evaluation program for the school year 1949-50. The selection of tests and the grades in which they are being administered have been given special consideration so that the results will be of the greatest value in the guidance of pupils and in the improvement of instruction and achievement at each successive developmental level.

The most effective guidance at secondary level results from the student's realization of his own needs and his abilities as related to these needs. Steps have been taken, therefore, to provide only tests having self-evaluation features. The program of self-evaluation in secondary schools is a co-operative project involving administrators, counselors, teachers and students, the ultimate goal of which is to lead students in making sequences of desirable choices which foster security and satisfaction. The success of these choices is dependent upon many factors, the most important being that of fitting the students' abilities and aspirations into the pattern of world realities with its ever changing economic and social concepts. Since the evaluation process continues throughout life, it cannot end in the secondary school; hence, it should be a major objective of the school staff to assist students in evaluating learnings, in developing self-direction and in making of desirable choices.

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[1] Abstracted from *Guide to a Program of Self-Evaluation* in The San Francisco Secondary Schools — Research Bulletin No. 151.

Dr. Lillie Lewin Bowman, director of the Bureau of Research, San Francisco Unified School District, has a long record in the field of research. She has been in her present position for the past four years, was assistant in the Bureau for 11 years, and served as supervisor for 10 years. Dr. Bowman has taught in both California and Oregon; she has also served as instructor and lecturer at the University of California (Berkeley), and the University of North Dakota. She was recently granted the rank of Diplomate in Counseling and Guidance by the American Board of Examiners in Professional Psychology. Dr. Bowman is a member of the editorial board of the *California Journal of Educational Research.*

The administrator's part in the program of self-evaluation is in providing instruments to counselors and teachers which will acquaint them with the abilities, needs and purposes of the individuals, and to set up a program in the respective schools in which such information is made available to the individuals in a form understandable to them. While the secondary schools are not limited to the tests prescribed on a city-wide basis, these are sufficient for use as a basic guide to self-evaluation.

The Tenth Grade Evaluation Program

The comprehensive program at tenth grade entrance begins with the *Primary Mental Abilities Test*, which measures five areas of mental development most closely related to learning ability. The scores made by the students on the various sub-tests (Verbal Meaning, Space, Reasoning, Number and Word Fluency) may be graphed to show the student his specific strengths and weaknesses. The relation of these areas to fields of learning are explained by the counselor. Students and counselor discuss together the problems to be met.

The *Iowa Tests of Educational Development* follow, measuring attainment in nine areas:

Test 1. Understanding of Basic Social Concepts.
Test 2. Background in the Natural Sciences.
Test 3. Corrections in Writing.
Test 4. Ability to do Quantitative Thinking.
Test 5. Ability to Interpret Reading Materials in the Social Studies.
Test 6. Ability to Interpret Reading Materials in the Natural Sciences.
Test 7. Ability to Interpret Literary Material.
Test 8. General Vocabulary.
Test 9. Uses of Sources of Information.

These records are graphed on individual cards provided by the publisher and show the student, not only his own attainment in the field, but his achievement in relation to expected achievement for his age and grade.

After ability and achievement are evaluated, the *Kuder Preference Record*, measuring the ten following fields of interest, is administered:

0. Outdoor
1. Mechanical
2. Computational
3. Scientific
4. Persuasive
5. Artistic
6. Literary
7. Musical
8. Social Service
9. Clerical

This tri-dimensional basic program of evaluation when supplemented by all other facts about the individual which influence home and school life become, when used properly, invaluable instruments of guidance. It is hoped that they will lead the participants into an early recognition of strategic needs and in the laying of a sound program for guidance in which the student plays the most significant role.

The data provided should be used systematically in identifying students, in becoming acquainted with them in terms of their abilities and needs, and in guiding them in techniques of self-appraisal. In order that th counselor does not become lost in the mass of data confronting him, it is advisable to identify extreme educational deviates who are in most urgent need of adjustment and guidance. Who are these deviates? How do we discover them? What can we do for them? The answers to most of these questions can be found by a proper interpretation of these data.

Who Are These Deviates?

They are students who are failing to make satisfactory school adjustments because they fall into one or more of the following groups:

a. Extremely over-age
b. Academically retarded
c. Mentally retarded
d. Chronologically or socially immature
e. From an irregular home environment
f. From a foreign home
g. Superior or gifted

After the needs of these have been met the remaining students may be counseled routinely during the term.

How Do We Discover Them?

Any listing of students showing chronological ages is the clue to many sources of poor school adjustment. The age-grade distribution for San Francisco shows that the average age of a beginning tenth grade student is approximately 15 years, 4 months. Twenty-five per cent are 16 years of age or older at tenth grade entrance and in last year's tenth grade, 391 or eight per cent were more than 17 years of age. While eight students in a hundred may appear insignificant in number, they become most significant in terms of educational and social maladjustment. It is these students who become discouraged and form our earliest group of drop-outs. It is among this socially more mature group that many undesirable behavior departures arise. Unless these students are reached early in the term, they often pass from an unhappy school life to a less happy adult life.

It must be remembered that these over-age students are not only slow learners and the significantly retarded; among them are victims of poor health, concentration camps, and irregular school and home environments arising from dozens of sources. In every case of extreme retardation, the source should be investigated and steps taken toward adjustment.

Frequently, the awareness on the part of the student that someone is interested in his success is the key to the solution.

Another group of students who fail to make satisfactory school adjustments are those who are either socially or mentally immature. Last year, approximately 150 students in their fourteenth year or younger entered the tenth grade. By virtue of the fact that they were highly endowed mentally, they could have made the grade as far as academic success is concerned. There are, however, frequently social conflicts among this group which prove a handicap, and in some cases we find students who are only average for their age struggling against heavy odds. More frequently than not, extremely under-age pupils find their way into high school through over-ambitious parents rather than superior mental ability.

Foreign backgrounds are not necessarily a basis for poor school adjustment. Neither is the language factor the major basis of difficulty. In San Francisco the second generation child of Chinese or Italian speaking parents is sometimes as foreign as a recent emigree from Europe or a student coming in under the displaced persons Act from the Orient. Very often the conflict between new world ideas and old world parents is the source of difficulty, and this is as common among children born in the United States to parents from another country as among our most recent arrivals.

An area of neglect, not only in San Francisco but in general, relates to provisions for the gifted student. A recent survey in San Francisco secondary schools shows that the highest five per cent of students in intelligence were not among those filling the honor rolls, not among the student body officers, and not distinguishing themselves in any school activities. In fact, some were making poor social as well as academic adjustments; others had dropped school at the minimum age without having completed graduation requirements.

What Can We Do for Them?

One does not attempt to give details of therapy in a limited article, particularly when each individual under consideration would require a different treatment. There are, however, procedures to follow so that those most urgently in need of assistance will not be overlooked. The following are a few suggestions given to counselors in the San Francisco secondary schools:

1. The counselor should sit down with the student, review his cumulative record, his school records, his Primary Mental Abilities profile, his Iowa Tests of Educational Development profile and his interest preference. His present program should be analyzed in the light of these factors and, if he appears to be working above or below his capacity or in the wrong direction, changes should be effected.

2. The attention of the parents should be called not only to the ability of their child in terms of students of the same age, but the problems to be met when an immature child is forced to compete with students socially and mentally more mature. Unless such students can be placed into programs where they can realize a measure of success, they will become social as well as academic misfits.
3. It is recommended that as soon as test results are recorded each school make a listing of the students in the 95th percentile, or in the highest five per cent in the school in both the *Primary Mental Ability* and the *Iowa Educational Development Tests*. Check this list of names against the students' records and their cumulative guidance folder. Find out what their past record of success has been and whether they are living up to their promise. High ability alone is not a key to academic success as is evidenced by the many cases to the contrary. These students also need guidance in order that they find their proper place in life and make contributions to society in proportion to their abilities. The student with a specific gift or talent should be directed as soon as possible to someone in the field of his special ability so that he will get sound guidance early in his career.
4. The program of our schools must be explained to foreign parents. Many do not understand that school is a place for other than academic pursuits. This is especially true of the northern Europeans who are insistent upon the college preparatory curriculum with little provision for electives. The southern Europeans, the South Americans, and the Mexicans, on the other hand, do not understand the concept of compulsory full-time education for students until the sixteenth year. The counselor must be resourceful in getting the implications of the prescribed and optional programs before the parents of various backgrounds and nationalities.
5. Counselors cannot be expected to cure the ills of the unsatisfactory home environment, but an understanding of them is frequently the basis for carrying a student through a difficult period. The loss of a parent through death or divorce, a new stepmother or stepfather, an eviction, or a home where the moral standards of the parents are not conducive to the best interests of the child are all important in guidance and no objective test record can be interpreted without a knowledge of the underlying facts.

Through this program of self-evaluation two factors are at work which appear to have results beyond the highest hopes of the administrators and counselors. The tenth grader not only becomes aware of his own abilities and his needs, but in doing so he discovers that others are interested in his success and his happiness. In this day when so many of our homes are inadequate, the type of counseling described here is becoming increasingly significant.

The annual "Research Methods Bibliography" for 1948-49, by Dr. Carter V. Good, Dean of Teachers College, University of Cincinnati, appears in the September, 1949, issue of *The Phi Delta Kappan*.

Appraisal of School Bond Campaign

JOHN ALLAN SMITH
Los Angeles Harbor Junior College

THIS public relations study represents an exploratory attempt to discover the relationships existing between the votes cast in a school bond election and (a) the socio-economic characteristics of the school district and (b) certain selected promotional media employed to secure passage of the issue. As indicated by at least two earlier studies,[1] there probably are certain predictable relationships existing between voting behavior, voter status, and promotional effort which, if known, would shape the nature of any school bond publicity campaign, particularly in a large, diversified district.

The results of the $75,000,000 bond election sponsored by the Los Angeles City School Districts (elementary, high school, junior college) in June of 1946, were subjected to correlation analysis with "Per Cent of Favorable Vote" and "Per cent Actually Voting" as criteria, against various census tract indices of socio-economic status and also against selected indices of campaign promotion.

There were 340,286 "yes" votes and 94,032 "no" votes cast in the 3,574 precincts comprising the school district. In order to reduce this vote to a workable size and take advantage of certain available data, the positive and affirmative votes in the various precincts were converted into similar votes for the 354 census tracts of the district. (A census tract is an arbitrary geographical unit into which all major cities are now divided for the purposes of making population comparisons from census to census.) Through the courtesy of the Haynes Foundation, data concerning education, occupation, age, fertility, population growth, and social rank were obtained for each tract.

In addition, reports were procured from each school principal as to the extent of house-to-house canvassing in his respective area and the number of classes on half-day schedule. Furthermore, a careful plotting was made as to the reward in the form of school buildings and other improvements promised the various areas of the city in the event the bonds should pass. Finally, a careful analysis was made of the 2,839 column-inches of bond publicity printed by the four metropolitan daily and eight local community newspapers in terms of their claimed circulation and professed geographic area of circulation.

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[1] Gosnell, H. F. and Schmidt, J. J., "Relation of the Press to Voting in Chicago," *Journalism Quarterly*, 13:129-147, June, 1936, pp. 129-147.

Maughan, Reese P., "The Public Vote on Issues of School Finance in Cincinnati, 1929-1939." Unpublished doctor's dissertation, University of Cincinnati, Ohio, 1942, 308 pp. (typewritten).

Dr. John Allan Smith has the distinction of being administrative dean in the Los Angeles Harbor Junior College which is in its first year of operation. He has been in the Los Angeles City Schools, serving in various capacities, since 1928. His article is based upon a doctoral dissertation which he completed in June, 1948, at the University of Southern California.

Findings

1. The votes of the craftsmen, operatives, and laborers who actually went to the polls tended to favor the school bonds, but, relatively speaking, not many such voters went to the polls. From a promotional standpoint, such workers are a potential source of "yes" votes, but there must be an advance voter registration drive and a special effort to get them to the polls.

2. Professional, semiprofessional, and managerial workers, as a group, showed a trend unfavorable to the school bonds, but, because of other influences, many individuals voted "yes." As a group they tend to take an active interest in civic elections, and in this election were particularly active in voting. From a promotional standpoint, this group is a potential source of opposition to a school bond election.

3. Clerical, domestic, and service workers, as a group, tended to oppose the school bonds, although there were many who voted for them. As a rule, they tend to be interested in civic elections and went to the polls in substantial numbers in this particular election. From a promotional standpoint, effort would better be expended only on those who would have some special reason for voting affirmatively.

4. Persons with only one to eight years of formal education tended to support the school bond issue, but were lacking not only in accepting their voting privilege, but in registering and in maintaining their voter's registration. Although persons of grade school education may, in general, be counted upon for favorable votes in a school bond election, special effort has to be made to get them to register and to go to the polls.

5. Persons with nine to twelve years of education tended to vote unfavorably on the bond issue unless there were motivating factors to the contrary. That is, persons with high school education cast a "mixed" vote. However, because they tended not to vote in as large proportions as they usually do, the negative effect of their vote was somewhat lessened. As a group, "high school" voters in Los Angeles tend to maintain a fairly high voter registration.

6. Voters with one or more years of college education tended to oppose the school bond election not only in their negative vote, but also in going to the polls in greater numbers than they customarily do in civic elections.

As a group, "college" voters in Los Angeles tend to maintain an active voter registration, but fall below the level of "high school" voters.

7. There was a definite relationship between the economic status of the populations of the census tracts and their support of the school bond election. The lower the economic status, the greater the chances that the per cent of favorable vote of a tract would be relatively high and that the per cent of eligible voters going to the polls would be relatively low.

8. There was a definite relationship between the presence of school-age children in a census tract and the support given the school bond election. The higher the ratio of children in a census tract, the higher the per cent of favorable vote.

9. Parents of school-age children were the most favorable to the school bond issue and more favorable than parents of preschool-age children, nonparents, or parents whose children are beyond school age. In Los Angeles, the parents of pupils go to the polls in more than average numbers, but they are likely not to have maintained their voter registration.

10. Parents of preschool-age children were highly favorable to the school bond issue, but they did not go to the polls in the proportions that might be expected nor were they registered so that they could vote.

11. There was a definite relationship between the presence of elderly people in a census tract and the support given the school bond issue. The higher the ratio of elderly people in a census tract, the lower the per cent of favorable vote. However, they did not make any special effort to go to the polls for the purpose of defeating the school bond issue.

12. Publicity, as such, did not serve to increase the per cent of favorable vote. Publicity in the metropolitan daily newspapers, in particular, was not influential; nor did it have any relationship to the outcome of the election that could not better be accounted for by other factors.

13. There was a somewhat higher per cent of favorable vote in these census tracts in which the local community newspapers gave more favorable publicity, but there was no measurable increase in the proportions of voters going to the polls. Local community newspapers which circulated in relatively poorer areas tended to carry somewhat better publicity for the school bond election than did those local newspapers which circulated in communities of more affluence.

14. The local community newspaper publicity was best in census tracts with greater proportions of school-age youth and in tracts which had experienced relatively greater population increase between 1940 and 1946.

15. The voters' lack of knowledge of specific details as to whether the bond money was to be spent in the voters' own areas apparently did not increase or decrease the voting support in such areas. Lack of such information, presumably, forced the voter to rely upon other reasons in determining his vote. Whether specific knowledge that a given district was not to benefit from the school bond election would have resulted in a lower

per cent of favorable vote in that area could not be determined from the data of this study.

16. House-to-house canvassing as a device to increase the per cent of favorable vote could not be shown to be too effective, even when all or almost all dwellings in a given area were canvassed; at least, house-to-house canvassing did not increase the proportion of voters going to the polls in support of the school bonds. There is a possibility that canvassing may have caused certain minority groups, particularly the poorer Negroes, to refrain from voting.

17. Favorable support in areas not profiting directly must be secured if a school bond issue is to succeed at the polls. Strong support in areas which are to profit from passage of a bond issue is not sufficient.

18. For a school bond election to succeed, parents of preschool or school-age children must be induced to register and go to the polls. Areas with high ratios of school-age children should be well informed of the need for the bonds, of the importance of a successful election, and of the necessity of going to the polls.

19. It would be wise not to urge middle-aged or elderly people who do not have school children in their household to go to the polls on a school bond issue. In fact, it is perhaps inadvisable to expend any effort to campaign in areas with high concentrations of such people.

20. Purchase of a metropolitan daily newspaper is associated with economic status and purchasing power. Therefore, the greatest proportions of readers of the metropolitan daily newspapers are to be expected among those with high school and college educations, among those who hold occupations in the semiprofessional and managerial classifications, and among those able to pay relatively high monthly rentals. The readers of metropolitan daily newspapers are those more likely to take an active interest in civic elections and to oppose expenditure of public funds and increases in taxation. Therefore, a committee in charge of a school bond election campaign should anticipate that any publicity, regardless of its nature or point of view, appearing in a metropolitan daily newspaper is likely to be read by persons who will be opposed to the issue.

21. The metropolitan daily newspaper will not be able to develop affirmative votes for issues involving tax-increasing expenditures so long as those newspapers have their principal circulation in areas which, for economic reasons, are strongly opposed to public bond issues, and have their lowest circulation in those areas which would not feel the direct pressure of increased taxes and which are most likely to support such issues. Such newspapers are not to be counted upon to increase the affirmative vote. They can, however, be expected to increase the negative vote because their readers are voters highly sensitive and opposed to public expenditures. The publicity in metropolitan daily newspapers probably must have strong economic appeals — appeals which, per se, also profit

those of considerable economic security — if they are to be mediums influencing the results of a school bond election. Social and civic appeals have dubious value.

22. On the basis of publicity given the 1946 Los Angeles election, a minimum "standard" to inform the public of any future bond issue would be: one bond story per issue; stories which average 12 column-inches in length; as many favorable (advocating "yes" votes) as informative stories; and no "pro-con" or unfavorable stories. These standards are not to be regarded as necessary to influence positive voting action. They are to be regarded as necessary to inform the public of the need for the bonds as viewed by the board of education and the professional educators. If a newspaper wishes to influence its readers to vote favorably, the standards undoubtedly would have to be set higher; how much higher could not be determined by this study. This would have to be the problem of a future study using the standards here suggested for purposes of comparison.

23. The fact that a school is so overcrowded as to require a half-day schedule for some classes in order to accommodate all the children in a given area is no criterion that the voting in that area will be any more favorable than elsewhere. Overcrowding may only be counted upon to increase the affirmative vote when it is so great as to meet or exceed the average for the entire school district. Even then, the number of voters actually going to the polls is not likely to exceed the average for the entire district.

24. To get effective support in a school bond election, the promise of a reward must be an entire school plant. The promise of a single new building or anything less is not sufficient to induce voters to be any better than average in their support of a school bond election.

"Research has pointed the way for the development of present-day programs and practices, it furnishes the information and data by which the effectiveness of current educational procedures may be judged, and it determines the direction which tomorrow's offering will take by permitting the expreimental introduction of forward-looking activities today." Excerpt from Dr. Herold C. Hunt's address to the 1949 annual meeting of the American Council on Education. (*The Educational Record,* 30:336, July, 1949.)

Three Methods of Teaching Arithmetic

CHARLES F. HOWARD
Sacramento State College

GOOD teachers in the elementary school have long felt that children should understand the meaning or "why" of arithmetic, as well as be able to carry out the computations and know the "how" of arithmetic. Teachers have also noted that if children are shown "how" arithmetic problems are solved or "how" arithmetical computations are carried out, many of the pupils may figure out the "why" for themselves.

These observations have led many a teacher to concentrate her efforts in arithmetic upon showing her pupils "how" new steps in arithmetic were computed and then, after the pupils had worked a number of similar examples, she would check to find those pupils who needed further help and again show them "how" the step was performed. This general procedure, showing "how" to do a problem, giving many similar exercises for practice, and then checking to find where more help is needed, has been used for over a hundred years in the elementary school with varying success. While many children have learned arithmetic through this procedure, every teacher knows that many children have not. She is all too familiar with the complaints of those from outside the school, or from high school teachers, that many children have not the competence in arithmetic that is required to meet their needs.

The teacher is now looking hopefully to the field of audio-visual aids to see what is available to help her explain the "why" of arithmetic to those children who have difficulty understanding it. She finds that there are available many films and suggestions for using concrete materials to help develop the meaning of arithmetic, but she also wonders whether these aids are worth the time that it will take to use them.

The experiment partially described below was an attempt to measure whether or not a method of teaching which required a considerable amount of time spent upon developing the meaning of arithmetic, through the extensive use of audio-visual aids, was worth the extra time.

In 1947, with the excellent cooperation of a number of elementary school teachers in San Francisco, the writer set up an experimental situa-

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For the past two years, Dr. Charles F. Howard has been associate professor of education at Sacramento State College. He has had previous professional experience in elementary school teaching and administration. Dr. Howard's article is based on his doctoral dissertation and a follow-up study, both completed at the University of California, Berkeley.

tion where fifteen classes of children in Grades V and VI were taught fractions by three different methods. Considerable effort was made to equate the groups so that the children in each group would be similar to those in the other two groups with regard to mental age, arithmetical ability, socio-economic background, school facilities, and the time spent daily upon arithmetic. The teachers selected were all skillful, experienced teachers, who could have used any one of the three methods employed with competence. Considerable care was taken to insure that the children in each of three groups worked on similar arithmetical problems throughout the sixteen weeks the experiment continued. The sequence in which the new work was introduced to the pupils was the same for each group. The writer spent his full time in visiting the classrooms concerned, and felt satisfied that, apart from the controlled differences provided by the experiment, the learning situation of the children in each group was as similar to that of each of the other groups as could be attained.

Methods Used

The experimental differences in methods employed in each of the three groups to teach each new step in arithmetic are described below.

In Group A, each teacher briefly introduced the new step, carefully showed the pupils how to do the computation or solve the problem involved, and then assigned exercises in similar computation or problems. After the exercises had been completed, the teachers went over them with the class, explaining the difficulties that had arisen, and then assigned further exercises. This process was repeated until the children were able to solve without difficulty the exercises pertaining to the particular step in question. The teacher then proceeded to the next step in the sequence. The children in Group A worked many exercises that were composed entirely of computation, and also solved many verbal problems in arithmetic which involved this computation. For the purpose of the experiment, the use of audio-visual aids was deliberately avoided, and no attempt was made to develop the "why" of each step. The emphasis was placed upon showing the child "how" to do the work, and then giving him abundant practice in working computational exercises and arithmetical problems of a verbal nature.

In Group B, each teacher spent considerable time in introducing each new step. She took time to show the pupil how the step concerned fitted in with his former experience and with the arithmetic he saw in the world about him. She used a set of materials that had been provided for her, and which contained many concrete objects designed to bring out the meaning or "why" of each step. A series of carefully prepared charts were used to help explain the meaning and "why" of each step. When the children understood the meaning of the new step, the teacher gave them practice in applying their knowledge by having them solve numerous verbal problems in arithmetic. These children were not given drill exercises in computation, but had all their practice in the form of solving arithmetic problems of a verbal nature.

In Group C, the teacher introduced each new step very carefully, as had the teacher in Group B. She used a similar set of materials and charts. She also took considerable time to emphasize the meaning and "why" of the arithmetic involved. The practice provided for the pupils, after they understood the meaning of a new step, was in the form of both numerous exercises in computation and in verbal problems.

Briefly, to sum up the differences among the methods, Group A did not emphasize the "why" of each step and did not use visual aids in the form of concrete materials and charts, but it did have considerable practice in working exercises in computation and in solving verbal arithmetical problems. Group B spent considerable time in learning the "why" of each step, made extensive use of visual aids, and had considerable practice in solving arithmetical problems of a verbal nature, but did not have practice in drill exercises involving computation only. Group C spent considerable time in learning the "why" and in using visual aids, as had Group B, but the practice provided consisted of both verbal problems in arithmetic and in exercises in computation similar to those used in Group A. The teacher in Group C, therefore, employed a combination of the methods used in the other two groups.

At the end of the sixteen weeks experimental period, June, 1947, all groups were retested to see what gains had been made by the children: (a) in solving arithmetical problems of a verbal nature, and (b) in doing exercises involving arithmetical computation only. On first inspection, the results were very surprising because no general advantage for any one method over the other two was apparent. At certain grade levels one method appeared to have a slight advantage over another, but often, after more detailed analysis, it was seen that this gain was only in certain steps that had been developed and did not apply to all steps generally. It seemed, at the time, that it made very little difference whether the teacher used audio-visual aids or not, and that it made very little difference whether or not she developed the meaning of arithmetic. In fact, at the only grade level at which a statistically significant difference appeared, Low V, the difference was in favor of Group A, where no audio-visual aids had been used and where no emphasis had been placed upon explaining the meaning or the "why" of each step. The differences among the gains made by the three groups in the low fifth grade are shown in Table I.

TABLE I

DIFFERENCES IN THE GAINS MADE BY GROUPS IN THE LOW FIFTH GRADE IN COMPUTATIONS INVOLVING THE ADDITION OF FRACTIONS, MEASURED AT THE END OF THE FIRST SEMESTER, JUNE 1947

Groups	Difference Between the Means of the Gains	Standard Error of the Difference of the Means	Critical Ratio
A-B	11.5	1.3	8.9
B-C	— 7.7	1.1	—6.8
A-C	3.8	1.1	3.5

Table I, which shows the gains in computation only, indicates that the difference between the mean of the gains in Group A and the mean of the gains in Group B is 11.5 in favor of Group A, and is statistically significant as shown by the critical ratio of 8.9. The difference between the means of the gains of Group B and Group C, 7.7, is in favor of Group C, and is also statistically significant. The difference between the means of the gains in Group A and Group C, 3.8, is in favor of Group A, and is statistically significant, the critical ratio being 3.5.

Fortunately, however, the experiment was not stopped at this point. Following the summer vacation of the pupils concerned, in September 1947, the tests were repeated in the low fifth grade to see what the children had remembered about the arithmetic they had studied during the spring semester. A very different pattern was immediately apparent. A large difference, statistically significant, was found in favor of Group C. The mean for Group A had dropped considerably, showing that the children had forgotten a great deal of the arithmetic they had learned in the spring semester. The children in Groups B and C had lost very little, and the means were almost as high in September as they had been in June. Group C had lost surprisingly little; in fact it was noted that a few children scored even higher in September than they had on the same test given three months earlier before the vacation period.

TABLE II

DIFFERENCES IN THE GAINS MADE BY GROUPS IN THE LOW FIFTH GRADE IN COMPUTATIONS INVOLVING THE ADDITION OF FRACTIONS, MEASURED AT THE BEGINNING OF THE SECOND SEMESTER, SEPTEMBER, 1947

Groups	Difference Between the Means of the Gains	Standard Error of the Difference of the Means	Critical Ratio
A-B	— 0.2	1.8	— 0.1
B-C	—12.3	2.0	— 6.1
A-C	—12.5	1.1	—11.0

The differences among the means of the gains made by the three groups is shown in Table II. This table indicates the gains in computation only, and shows that the difference between the means of the gains of Group A and of Group B is 0.2, in favor of Group B, but is not statistically significant, as the critical ratio is 0.1. The difference between the means of the gains of Group B and Group C is 12.3, in favor of Group C, and is statistically significant, the critical ratio being 6.1. The difference between the means of the gains of Group A and Group C is 12.5, in favor of Group C, and is statistically significant, the critical ratio being 11.0.

Conclusions

The writer feels that a more extensive analysis will have to be made before the exact steps and grade levels at which it is desirable to use audio-visual aids extensively can be determined. The following general conclusions are, however, justified by the evidence obtained:

1. At the low fifth grade level, children will retain better what they learn in arithmetic if extensive use is made of audio-visual aids and considerable emphasis is placed upon teaching the meaning or the "why" of arithmetic. These gains may not be apparent until some time after the steps have been first taught. In fact, those children taught by a drill approach may, as in Group A of this experiment, score considerably higher on tests given directly at the end of the learning period.
2. A varying relationship should be obtained between the time spent in developing meaning and the amount of practice or drill given through exercises in computation. In Group B, where the children had the meaning of each step developed, but had little practice in computation, the means were consistently lower than in Group C where the children first had the meaning developed through using the same audio-visual aids but had considerably more practice in computation. The relationship between the time spent on developing meaning and the time spent on practicing computations should vary considerably according to the grade level of the children and the step in arithmetic being learned. Just what the best balance is between time spent developing meaning and time spent by the children on exercises and problem solving will depend upon the particular class concerned and the arithmetical step being learned, and will have to be decided daily by each teacher. This study indicates clearly that if the teacher omits either the development of the meaning of arithmetic or the provision for adequate practice in computation there is a likelihood that the child will not retain what he has learned, irrespective of how well he appears to answer questions given directly at the end of the learning situation.

CALIFORNIA TEACHERS — A Portrait

HENRY W. MAGNUSON
California State Department of Education

WHO teaches in California's public schools? How well is he trained for his professional responsibilities? To what extent is he using his professional training in his teaching duties? How long do California teachers remain in the profession? Why do they leave?

These and many other questions were answered in a comprehensive survey which was conducted in 1946-47 by the Bureau of Research of the State Department of Education. The survey report was published in May, 1948, but the facts have not received the attention they deserve. This article presents a brief review of some of the more pertinent survey data.

A simple one-page questionnaire, prepared by the State Department of Education, was used in the survey. Returns were received from 58,277 full-time certificated teachers. The following facts, taken from the survey report, constitute a good "portrait" of California's teaching personnel.

Personal Qualifications

Age —

The median age of all full-time teachers was 43 years; 25 per cent were 51 years of age or over, and 25 per cent were 34 years of age or younger. When considered by teaching levels, it was found that teachers in elementary, high school, and junior college, all had the same median age — 43 years.

Sex —

Of all full-time teachers, 78 per cent were women. The per cent of women according to teaching level was found to be: 94 per cent of all elementary school teachers; 57 per cent of high school teachers; and 33 per cent of junior college teachers.

Marital Status —

Of all full-time elementary school teachers, 80 per cent of the men and 54 per cent of the women were married; of all full-time high school teach-

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Dr. Henry W. Magnuson is chief of the Bureau of Education Research, California State Department of Education. He served as officer in charge of Audio-Visual and Training Aids Section of the 11th Naval District, and later was appointed to the position of assistant director of training in the U. S. Navy, 11th District. Prior to the war, Dr. Magnuson served as director of research in the Oakland Public Schools. He is a member of the editorial board of the *California Journal of Educational Research.*

ers, 86 per cent of the men and 36 per cent of the women were married; and of all full-time junior college teachers, 86 per cent of the men and 29 per cent of the women were married.

Professional Qualifications

Training Beyond High School —

Of all full-time elementary teachers, 66 per cent had four or more years of training beyond high school, 31 per cent had five or more years, and 10 per cent had six or more years. Comparable figures for full-time high school teachers were: 82 per cent had five years or more, 50 per cent had six years or more, and 22 per cent had seven years or more. As might be expected, junior college personnel were found to be the most highly trained of the three groups; 89 per cent had five or more years of training beyond high school, 73 per cent had six years or more, and 45 per cent had seven years or more.

Degrees Held —

Of all full-time California teachers, 31 per cent had no degree, 55 per cent had bachelor's degrees, 13 per cent had master's degrees, and less than one per cent had doctor's degrees. The percentages shown by teaching level were:

ELEMENTARY SCHOOL	
No degree	46%
Bachelor's degree	50%
Master's degree	3%
Doctor's degree	less than 1%
HIGH SCHOOL	
No degree	8%
Bachelor's degree	65%
Master's dgeree	26%
Doctor's degree	less than 1%
JUNIOR COLLEGE	
No degree	7%
Bachelor's degree	28%
Master's degree	56%
Doctor's degree	9%

Teaching Conditions

Size of District —

Of all full-time elementary school teachers, 24 per cent were in districts having an elementary a.d.a. of less than 500; 34 per cent in districts of less than 1,000; 56 per cent in districts of less than 4,000; and 66 per cent in districts of less than 10,000 a.d.a. Of all full-time high school teachers, 13 per cent were in districts with a high school a.d.a. of less than 500; 24 per cent in districts of less than 1,000; 47 per cent in districts of less than 4,000; and 62 per cent in districts of less than 10,000 a.d.a.

Of all full-time junior college teachers, 16 per cent were in districts with an a.d.a. in grades 13 and 14 of less than 500; 39 per cent in districts of less than 1,000; and 87 per cent in districts of less than 4,000.

Type of Districts —

Fifty-one per cent of all full-time elementary school teachers, 62 per cent of all full-time high school teachers, and 66 per cent of all full-time junior college teachers were employed in city school districts.

Class Size —

The median size of all elementary school classes was 34 pupils. This median was closely approximated throughout districts of all sizes except those of under 100 a.d.a. The median class size in districts under 50 a.d.a. was 20 pupils, and in districts between 50 and 99 a.d.a. was 29 pupils. The median class size of all high schools was 30 pupils, and of junior colleges, 28 pupils.

Teaching in Major or Minor Fields —

The following percentages of secondary school classes in the various subject fields were found to be taught by a teacher holding a major or a minor in the subject taught or in a subject in the same field:

Foreign Language classes	89%
Science classes	81%
English classes	77%
Physical Education classes	77%
Music classes	74%
Social Science classes	74%
Business Education classes	69%
Vocational classes	61%
Mathematics classes	60%

Professional Experience

Length of Service and Mobility —

The longest period of years taught in one district ranged from 1 to 50 for elementary school teachers, 1 to 49 for high school teachers, and 1 to 35 for junior college teachers. The median number of years taught in a single district for each of the three groups were: 3, 10, and 10.

Of all full-time elementary school teachers: 39 per cent had taught in only one district, 19 per cent in two districts, 12 per cent in three districts, 7 per cent in four districts, and 10 per cent in five or more districts. Thirteen per cent did not state the number of districts in which they taught.

Of all full-time high school teachers: 47 per cent had taught in only one district, 22 per cent in two districts, 12 per cent in three districts, 5 per cent in four districts, and 5 per cent in five or more districts. Nine per cent did not state the number of districts in which they taught.

Of all full-time junior college teachers: 43 per cent had taught in only one district, 24 per cent in two districts, 11 per cent in three districts, 6 per cent in four districts, 4 per cent in five or more distrites. Twelve per cent did not reply to the question.

Withdrawals from Teaching —

Many teachers drop out of teaching for varying periods of time. The following table presents an analysis of the reasons which were given by those who withdrew from the profession for a period of time:

Reasons for Withdrawing from Teaching

Reasons Given	Elementary School Teachers (%)	High School Teachers (%)	Junior College Teachers (%)
Military Service	5	27	37
Study and Travel	9	27	18
Marriage	33	13	5
Entered other occupation	7	15	19
No reason given	20	2	7
Maternity	10	5	3
Reason not classified	7	4	6
Illness (self)	6	4	2
Illness (family)	2	2	1
Unable to obtain position	1	1	2

Only a few of the pertinent facts of the State Department of Education survey are given in this article. The Survey Report merits careful study and analysis by those who need facts concerning California's teachers.

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"Many investigators using the traditional forms of research are concerned about the slowness with which research findings affect practice. They would be disposed, however, to say that the problem is largely one of communication. If research reports were more lucidly written or more copiously illustrated or if the implications for practice were stated more clearly, teachers would be able to put the results to work. . . . The reading of research studies conducted by someone else undoubtedly has some influence upon the practices of teachers. Greater influence will be exercised, however, by data a teacher himself accumulates and interprets in connection with his attempts to cope with an instructional problem about which he is seriously concerned." Excerpt from article by Stephen M. Corey on "Fundamental Research, Action Research, and Educational Practices" (*Growing Points in Educational Research,* 1949 Official Report of the AERA, pages 264-265).

Student Teachers and Research

H. ORVILLE NORDBERG
Mills College

RESEARCH in education is justified and exists primarily to find those truths which may bear upon the improvement of education as a science and upon teaching as an art. And since the discernible truths in all educational endeavor undertaken in a democracy must be subjected to application by society, it is clear that available research findings both merit and demand careful scrutiny.

But is the research examined? Are teachers, as directors of learning, aware of the implications of research for classroom teaching? If the improvement of instruction and the programs of teacher education do not keep pace with the opportunities demonstrated by research, the time and the effort consumed in such research largely is wasted.

Serious doubts as to the awareness of teachers regarding the implications of research have been expressed frequently, particularly by professors who have educational journals readily available and for whom the abstruse jargon presents no obstacle. But evidence that new teachers do not possess a knowledge of the research now appears to be more important than the demonstrable fact that older teachers lack an adequate realization of the usefulness of research.

The writer recently administered a 100-item true-false instrument to student-teachers in several colleges and universities to determine their awareness of implications of research for teaching spelling, written expression, and grammar and usage.[1] It was found that only 30 of the research implications embedded within the instrument were accurately recognized by a sufficient proportion of the student-teachers to indicate positive group awareness. The responses measuring the extent of awareness of 28 implications were proved statistically to be within the range of guessing, while on 42 items the student-teachers as a group were definitely not aware of the research implications.

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[1] Nordberg, H. Orville. *The Awareness among Student-Teachers regarding Research in the Language Arts.* Ph.D. dissertation, University of California, 1949. 235 pp.

Dr. H. Orville Nordberg for the past three years has been assistant professor of education at Mills College. His prior teaching was done at San Diego, Acalanes Union High School, and the California College of Arts and Crafts. His article is based upon his Ph.D. dissertation which was completed in June, 1949, at the University of California, Berkeley.

The data indicated that the future teachers were not appreciably more aware of the research in any one of the three fields; thus they did not know more about the efficient teaching of spelling than of written expression or of grammar and usage. Moreover, the future elementary teachers tested were somewhat more aware of better methods of teaching the language arts than were the secondary school teachers even though the test items were phrased to be especially applicable to the secondary school.

There are several questions which might be asked in the light of these findings; some of them merit citation here. First, if the newly-trained teachers cannot be expected to know the lessons to be learned from the research, what assurance is there that they will acquire such knowledge later? Second, are the academic course requirements for graduation and the teaching credential so heavy as to prohibit suitable attention to the practical art of classroom teaching? Third, are secondary school teachers of the language arts so concerned in their undergraduate years with the aesthetics of literature that they cannot learn to teach well such essentials as spelling, written expression, and usage? Finally, may it be assumed that teachers of mathematics, the physical sciences, and the foreign languages also are being wasteful of time, money, and energies and that their teaching efforts are being expended without a commensurate return in pupil achievement?

Certainly the secondary school teacher of the language arts must himself achieve a thorough grounding in the structure and use of the English language before attempting to provide learning experiences for others. But it also appears necessary that teachers have a fuller realization of the direct inferences to be drawn from research findings. It is recommended that (1) the preservice training of teachers include specific instruction in the reading, analysis, and interpretation of reported research; (2) cogent summaries and implications of research increasingly be published and distributed by responsible authorities; (3) practical applications of research be utilized in the textbooks of education and throughout all teacher-education programs in institutions of higher learning.

CERA To Meet at San Jose

The Annual Conference of the California Educational Research Association, Northern Section, will be held at San Jose State College on Saturday, March 25, 1950, according to Dr. Harold D. Carter, president. The theme of the Conference will be "Research to Meet Educational Needs." Those who desire to present papers at the Conference should contact Dr. Carter at the School of Education, University of California, Berkeley.

Study of Terminal Vocational Students

STANLEY L. COMBS
University of Redlands

TERMINAL vocational junior college students are not getting training in general education for well-rounded living. Judging from a recent investigation conducted at three California junior colleges,[1] they seem to favor occupational goals to the exclusion of other areas of living. Education for personal understanding, for relationships with others, and for active, participating, democratic citizenship are vital needs for them also. Rather than neglect these other areas of living so vital to the development of the whole person, can we not build a required core of general education?

Providing a unified general education for American youth is a challenge of the President's Commission on Higher Education.[2] Junior colleges and other institutions of higher learning imperatively need to find the right relationship between vocational training and an integrated general education program. There must be a broadening of curricula so that, while the student is preparing to make a living, he is also learning to understand and practice democracy and how to live away from the job. This "human wholeness" is one of the aims of general education for active democratic participation.

While being given the opportunity to develop marketable skills for increasing their economic efficiency, how can the young men and women reach a fuller understanding of their fellows at work and play? How can terminal vocational students in the junior colleges best be aided in acquiring some of the fundamentals they need for rich personal living? Should they not, while developing vocational skills, develop also their awareness of their duties as citizens?

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[1] Bakersfield College, Pasadena City College, San Bernardino Valley College.

[2] The President's Commission on Higher Education, "Establishing the Goals," *Higher Education for American Democracy* (Washington, D.C., December, 1947) Vol. I, p. 6.

Dr. Stanley L. Combs holds the rank of associate professor of education at the University of Redlands where he has taught for the past two years. He took his undergraduate work at the University of Colorado, and graduate work at the following institutions: University of Southern California, Oxford University, University of Washington, and the University of California at Los Angeles. Dr. Combs' article is based upon his doctoral dissertation which was recently completed at the University of California at Los Angeles.

What is the junior college doing to meet needs of so-called terminal students as compared with upper divisions preparatory students? Are the terminal students receiving a general education within their capacities and according to their desires while they are training for their jobs? Caring for the needs of terminal students is probably the most pressing and critical problem of the junior college.

It was the purpose of this investigation to discover, first, what kind of person the terminal vocational junior college student is. Further, it studied the type of general education offered him. And, finally, it made suggestions concerning the content of general education that seems most suitable for the terminal student as revealed by a study of his characteristics.

The Terminal Vocational Student

Briefly the "typical" student of the group comes from a lower middle class home where his mother is a housewife and his father a skilled laborer. Both parents attended high school. The student's health is good; his hobbies are athletic and manual. He likes doing things with his hands, but seldom reads for pleasure. His occupational aims are well-defined and he is in a hurry to go to work. He has, in many cases, had work experience related to his vocational aim and is at least partially self-supporting. If the student is a man, he expects to become a skilled worker; if a woman, an office clerk. His high school grades averaged "C", and he is earning a "C+" in his junior college major. He scores in the fourth decile of the national norms in academic achievement tests, and his total score in the A.C.E. Psychological Examination is in the third decile of the national norms. In a study of values he shows an overwhelming preference for the religious, although economic and political values are also favored.

Among the terminal students analyzed, approximately one third of the women and more than three fourths of the men are at least partially self-supporting. They have had, and are working at, all sorts of jobs, most of which lean more to the real occupational world than to the part-time work of high school adolescents. A very high percentage of all the students studied have had work experience related closely to their stated vocational aims. Terminal students in these colleges, then, may be assumed to know some of the problems of the occupational world for which they are preparing.

Hobbies of these students are preponderantly physical in nature. About twenty-five per cent of them like to work with their hands. More than a third report that they enjoy recreational life out-of-doors, but often merely as a spectator.

Nearly three fourths of the members of these students are housewives. Employed mothers generally are sales clerks or office workers. Four classifications representing kinds of employment of nearly two thirds of the fathers are, in order, skilled labor, managerial and official, agriculture, and sales (adapted from classifications in the *Dictionary of Occupational Titles, Part II, Titles and Codes*, Washington, D.C.: U. S. Government Printing Office, June, 1939). Skilled labor accounts for the largest percentage, about one fourth of the total.

Nearly half of the mothers and fathers attended high school, but the mothers are reported as having had more formal schooling than the fathers.

The occupational aims of nearly all the students are well-defined. Indeed there appears marked lack of interest in courses not leading directly to their vocational goals. Most of the women, as well as some of the men, expect to become office clerks. By far the largest percentage of the men want to do skilled work: automotive mechanics, radio maintenance, aviation technology, sheet metal work, etc.

As is to be expected, a high relationship exists between the occupational aims of these students and their junior college majors. The most popular courses are those of the Business and Distributive curriculum and of Trades and Technology.

In the three high school subjects (English, mathematics, and social studies), grades of which were analyzed, these students received a "C" average. The picture of these men and women in their junior college major grades differs from that presented by their high school marks in that they earned slightly above average grades (C+) in the fields of their interest.

Results of the American Council on Education Psychological Examination follows the same pattern as the achievement tests. More than half of these students have total scores in the lowest three deciles, with two thirds of them ranking in the percentiles below fifty (0-49) in total scores of the A.C.E. Psychological Examination.

According to items checked on the Strong Vocational Interest Blank, four fifths of the students have interests closely related to their occupational aims.

The value which appears to be of primary importance to women in particular (from the Allport Study of Values) is "Religious." Among the men, it is a strong third only to "Economic" and "Political." The "Religious" value, however, rates an overwhelming first preference among all students. This fact would seem to indicate a yearning for spiritual adequacy within terminal vocational junior college students.

General Education Offerings

From a study of the kinds of general education now offered these students there is evidence that few general education courses are planned to meet their needs and abilities. The scope and content of general education now usually given terminal vocational students in three California junior colleges are confined to a few courses in English, history and government, sociology, economics, psychology, health, and physical education. In general these courses seem limited. Traditional aims predominate, and content (revealed by a study of catalogs and instructors' outlines) appears frequently to be more that of subject matter rather than student's needs. There are, however, some exceptions to this fact, *i.e.*, the courses in Special Repair English, Business Speech, Spelling, Writing Laboratory, American Problems, Sociology of the Family, Psychology for Personal Efficiency, and Health. This group is, however, an aggregate of courses from three schools and does not represent those offered by only one institution.

Even when courses are available which are related to needs and abilities of terminal vocational students, there is evidence that these students are not enrolled in them. Instead they take courses which tend to be more "academic" than "terminal." There are a few exceptions: at one college all of the terminal vocational students are taking a course designed to meet their needs for understanding themselves, at another institution most of these students are enrolled in a course which endeavors to aid them to understand their functions as democratic citizens, emphasizing problems of contemporary government.

Psychological and achievement test results show that these students score in the lowest deciles of the national norms, and, therefore, they require a special type of English which applies to their terminal and occupational needs. One such course in remedial English, apparently set up for them, enrolls none of these terminal vocational students.

(The second half of Dr. Combs' article, which will appear in the March issue, proposes a curriculum in general education to meet the needs of terminal vocational students.)

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"An expanding education and a changing civilization continue to present challenges which must be met with vigor. In the past, we have not feared to seek new strength through change and adaptation; we shall not in the future be content to lose purpose through adhering to sterile tradition. At times in our joint effort we may have slacked, worshipping the giants of the generation before us. Now their ranks thin; our own roles have come up for review. We need find within ourselves those elements of strength with which to carry forward and continuously re-define the work which has so well been begun." Excerpt from report on "The American Educational Research Association in 1948," by Douglas E. Scates (*Growing Points in Educational Research*, 1949 Official Report of the AERA, page 142).

Changing Pupil Behavior

STANFORD S. KIGHT AND JOHN M. MICKELSON
Temple University

ONE of the most widely accepted objectives of modern secondary education is that of improving the behavior of the learner. Even though rather general agreement has been reached on the desirability of attaining this objective, there has been little agreement as to the educational methodology and curriculum organization best suited to this end.

One group contends that the most effective means of improving the learner's behavior is to be found in the organization of all instruction around a genuine pupil problem. A problem is defined by this group as a situation in which action is involved, the learner is the agent of the action, and he has some difficulty or blocking in regard to the action.

In the light of this definition of a problem, the presentation of units of instruction must focus the factual information on the pupil's difficulty in such a manner as to relate this information directly to the action which the pupil must take in order to overcome his difficulty or to solve his problem. Thus, in the problem presentation the relationship of factual information to the necessary rules of action is not left to chance, but is the core around which the entire presentation is organized.

Another group has held that, providing the learner is in command of the essential facts supporting a given action, this action can naturally be expected to follow. It is further contended by this group that the organization best suited for the learning of such facts is one based on the internal consistency of the facts. This has been called a logical or subject-centered

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Dr. Stanford S. Kight is a colleague of Dr. Mickelson's at Temple University, where he also holds the rank of assistant professor of education. Dr. Kight served as teacher and administrator in various Missouri schools before going to the University of Southern California for graduate study. He also received his doctorate in 1947. One of his responsibilities at Temple University is the direction of the Service Center in Group Dynamics in the Division of Secondary Education.

Dr. John M. Mickelson is assistant professor of education at Temple University, Philadelphia, Pennsylvania. He formerly taught at Glendale, California, the University of Southern California (part-time), and at the University of Akron, Ohio. His article is based upon his doctoral dissertation which was completed at the University of Southern California in August, 1947. He collaborated with Dr. Stanford S. Kight in preparing the dissertation.

organization of curricular material. The presentation of such material ignores or only incidentally touches upon the relationship between facts and their corresponding rules of action; the subject-centered presentation is largely concerned with the teaching of facts in their logical relationship to each other.

The authors attempted to determine the relative effects of these two approaches in changing pupil behavior. An investigation was conducted in which 24 teachers in 11 schools in the Los Angeles area taught 8 problem-centered units and 8 subject-centered units to 1415 pupils in 96 classes. The study sought answers to the following specific questions:

1. What are the relative effects of the two types of presentation on:
    - a. The learning of rules of action?
    - b. The learning of factual information?
    - c. The ratio of rules of action learned to factual information learned?
    - d. The connecting of specific facts with their corresponding rules of action?
2. To what extent is this learning related to the I.Q. of the learner?

The experiment was conducted in such a way as to give reasonable assurance that the two types of presentation would be evaluated in accordance with the best teaching practices associated with each.

The results of this investigation indicate rather clearly that problem-solving can be expected to produce more behavior change than will the subject-centered approach to learning. In terms of rules of action learned, the findings of the study reveal a consistent pattern of difference between the two types of presentation regardless of subject-matter fields. All these differences were statistically significant and in favor of problem-solving. The results in terms of factual information learned by the two presentations seemed to be somewhat related to the subject-matter field in which the presentation was made. In each instance the difference obtained between the two presentations was in favor of problem-solving, but it was not statistically significant in all instances. Even though each of the differences was not statistically significant, the pattern of differences was the same (in favor of problem-solving) as was found for the learning of rules of action.

Another aspect of the study compared the learning of both rules of action and factual information by a particular type of presentation. It was found that undc [illegible] 'here was a definite tendency to learn somewhat more [illegible] factual information, although the difference was not significant. The same type of comparison was made for the subject-centered type of presentation. Here the findings leave no doubt that more factual information was learned than were rules of action. A careful examination of the findings so far discussed makes it clear that pupils learned more rules of action and more factual information through problem-solving than they learned as a result of the subject-centered type of presentation.

One of the most interesting aspects of this investigation was an attempt to determine the extent to which pupils saw the relationship between a particular fact or set of facts and the rule of action which should follow from the knowing of such facts. Only a sampling of the total data obtained was considered in attempting to determine this relationship. The data sampled indicated the superiority of the problem-centered presentation in aiding pupils to make the connetcion between specific rules of action and their corresponding specific facts.

A portion of the data was also considered from the standpoint of its relationship to the I.Q. of the learner. The same general patterns established in the findings already discussed seemed to hold rgardless of the I.Q. of the pupil. It is interesting to note, however, that while the pattern of learning was the same for pupils in the I.Q. range 115 to 143, the differences were not statistically significant. The differences for the pupils in the I.Q. range 62 to 85 remained statistically significant. This would seem to indicate that learning by the pupils in the higher I.Q. ranges was less affected by the type of presentation than was the learning of the pupils in the lower I.Q. ranges.

In so far as the aspects of learning under investigation in this study are important in the improvement of pupil behavior, and in so far as the subject areas and topics sampled are representative of the curriculum as a whole, the study indicates that conformity to the following rules should contribute to increased learning.

1. *Organize each instructional unit around a genuine, pupil-accepted problem area.*

For this problem area to be accepted by the pupil, it should grow out of his own experience and be a part of his everyday living. It should be a problem which the learner must solve in order to maintain his place as a functioning member of society. This comprehensive problem area should be delineated into its sub-problems, so as to enable the learner to make a clear identification between his purposes and these sub-problems as goals to be achieved.

2. *State and present the pupil problems as something to do rather than something to know.*

The findings of the study indicate clearly that rules of action are best learned when those rules of action are clearly identified and stated. If the objective of modern secondary education is the improvement or changing of pupil behavior, the results of this study indicate that the action to be taken, or the thing to do, cannot be expected to follow naturally from the knowing of the essential fatcs supporting an action, but that the action itself must be defined, stated, and taught. This rule seems to apply to desired actions in each of the subject fields sampled.

3. *Focus all the factual information presented directly on the solution of the pupils' problems.*

The findings of the study indicate clearly that the pattern in which pupils study factual information is important in their understanding of the connection between facts and their corresponding rules of action. It will be recalled that the amount of factual information learned did not vary greatly as a result of the two methods of presentation. The results did show, however, that the pupils more consistently learned to connect the specific facts with their corresponding rules of action in the problem-solving situation. If action is to be intelligent, it would seem to follow that the learner must be able to make this connection consistently.

This study, along with others of a similar nature, indicates that, at least for a majority of the learners, problem-solving offers a sounder and more direct approach to intelligent behavior change than does the subject-centered type of presentation.

Suggested Research Problems

1. An analytical study of teachers' living standards compared to their professional incomes.
2. An evaluation study of California's program of continuation education.
3. A study of the relationship between financial expenditures for public elementary and secondary education and the effectiveness of the educational programs found in California school districts.
4. A follow-up study of certificated personnel who have left the teaching profession in California since the close of World War II.
5. A comparative study of the preparation for high school of eight-grade graduates from small elementary school districts and those from larger unified districts.
6. A study of the effect of the present method of distributing State school funds on school consolidations in California in recent years.
7. The development of a "formula of necessity" for use in apportioning State funds to small districts in California.
8. The development of a system or technic of appraising democracy in school administration.

Book Reviews

Findings and Recommendations of the Committee on School Districts

State of California, Sacramento 14, California, September 24, 1949, 129 pp.

The California State Legislature in 1945 authorized the establishment of a State Commission on School Districts. During its two and one-half years of active operation, the Commission directed surveys in all counties of the State. This report cleverly portrays the accomplishments, trials and tribulations, and recommendations of the Commission. The Commission went out of existence on October 1, 1949.

The report, prepared under the direction of George H. Geyer, State Survey Director, reviews the history of school district reorganization in California and points out the urgent need for a better plan of organization than is now found in the State. Facts presented in graphical form call attention to the weaknesses of the existing pattern of small school districts. Financial data are cited to prove that school funds could be more expeditiously used in larger school units. Chapter IV presents the findings and recommendations of the Commission, many of which will challenge the best thinking of California educators. The report should serve as a useful guide or handbook for those who are concerned with the development of a better and sounder plan of school district organization in California.

The report is well documented and should prove useful as a history of school district reorganization in California. It is unusually attractive and presents its facts in terse, striking fashion.

Report of the Cooperative Committee on School Finance

Prepared under the joint direction of the California State Department of Education, Sacramento, and the California Teachers Association, San Francisco, January, 1949, 150 pp.

This report represents the most complete and authentic analysis of the financial problems and needs of California's public elementary and secondary schools. The Cooperative Committee on School Finance, with the help of Dr. John K. Norton, Professor of School Administration, Teachers College, Columbia University, and Dr. Eugene S. Lawler, Professor of Education, Northwestern University, spent nearly two years in its study of California school finance problems, The report served as a basis for determining needed revisions in the State school apportionment law, Assembly Bill 2120.

The report consists of two parts: (1) the recommendations and their justifications; and (2) the reports and studies of various subcommittees and individuals who furnished data concerning financial problems and needs. Specific reports in the latter section include the following:

a. Modification in the State School Support Foundation Program;
b. Recommendations concerning the County School Service Fund;
c. Financing public junior college education;
d. Estimates of California's future school population: 1948-1960;
e. The problem of rapidly-growing school districts as related to equalization of state support for current expenditures;
f. Financing pupil transportation in California public school districts;
g. Capital outlay needs;
h. Assessment practices in California counties and their relationship to measuring local ability in making contributions to a foundation program of education;
i. Reorganization of school districts and state school finance.

It should be noted that the *Report of the Cooperative Committee on School Finance* in its preliminary edition was confidential and noncirculating. However, copies may be borrowed for short periods of time from either the California State Department of Education or the California Teachers Association.

The Third Mental Measurements Yearbook

O. K. Buros, *Editor*

Rutgers University Press, New Brunswick, N. J., 1949, 1047 pp.

According to the editor, this Yearbook attempts to list all commercially available tests — educational, psychological, and vocational — published in English-speaking countries between October, 1940 and December, 1947. It was the intent of the editor to publish a Yearbook once every two years, but World War II called a halt to such activities. The first two Yearbooks were published in the late 1930's.

The Third Mental Measurements Yearbook consists of two major sections: (1) tests and reviews, and (2) books and reviews. The "tests and reviews" section lists 663 tests, 713 original reviews by 320 reviewers, 66 review excerpts, and 3,368 references on the construction, validity, use, and limitations of specific tests. The "books and reviews" section lists 549 books on measurements and closely related fields, and 785 excerpts from reviews of these books which appeared in 135 journals. The books listed were published between 1940 and 1947.

Tests and their reviews are classified by subject and interest fields. The Yearbook may be used for many purposes, but is especially useful as a source book of information regarding available commercial tests. It should prove to be indispensable to research departments and to counselors.

Research News and Views

Under the direction of Dr. David G. Ryans, Associate Professor of Education, University of California at Los Angeles, the American Council on Education is sponsoring a research project, the "Teacher Characteristics Study," in an effort to determine those interests and qualities of temperament that characterize teachers who are regarded as being effective in their relationships with pupils. The two major objectives of the study are: (1) the identification of certain traits or qualities of successful teachers; and (2) the development of measures of teacher interests and temperament. The study is expected to cover a three-year period which started September, 1948. The Grant Foundation appropriated the sum of $60,000 to the American Council on Education for use in the "Teacher Characteristics Study."

* * * * *

"The amount of time spent in today's school on the three R's is more than four times as great as it was a hundred years ago," NEA Secretary Willard E. Givens states in his *1949 Annual Report*. "Year by year, opportunity to acquire skill and interest in reading has been advanced in our schools. Children read more books. They read more rapidly. They read with greater understanding. In the schools of our grandfathers, one basic reader was often the only reading text. It is not unusual in the better schools of today for a pupil to read 25 or 30 books during his first year."

* * * * *

The October 1949 issue of the *Pittsburgh Teachers Bulletin* reports on the present status of those who were selected as the "best teacher" of the year for 1946, 1947, and 1948. Roy Fisher of Nathalie, Virginia, the 1948 winner, is using his $2,500 contest award to work on his master's degree at the University of North Carolina. Miss Aline Neal, "Best Teacher of 1947," who was getting a $1,900 salary after 24 years of teaching, has doubled that salary in her new teaching position at the St. Andrew's Episcopal School in Jackson, Mississippi. Mrs. Edith Binker, the 1946 winner, who had an average salary of $1,284.09 for 22 years of teaching, is now a special teacher for a "problem room" of slow-learning high school students in Dunellen, New Jersey, where she receives a salary of $3,200 a year.

* * * * *

A comprehensive school survey was authorized by the Oregon Legislature. The survey will be conducted under the direction of Dr. T. C. Holy, of Ohio State University, and will get under way early this year.

School districts in Illinois have been reduced from 11,000 in 1945 to less than 6,100 at present.

* * * * *

In less than a year, Arkansas' program of school district reorganization has reduced the number of districts in the state from 1600 to 423.

* * * * *

According to the final report of the California Commission on School Districts, California had 2,332 active school districts as of June 30, 1948. Included in this number were 2,026 elementary school districts, 259 high school districts, and 47 unified districts. A total of 1,001 districts were reported to employ either one or two teachers.

* * * * *

Seventy-five persons from all sections of California attended the First Annual Conference on Educational Research at Santa Barbara College on October 14 and 15, 1949. Features of the program were: (1) a report of the statewide survey of school research departments in California cities and counties; (2) a talk by Dr. Ivan Booker, Assistant Director, NEA Research Division, on "The Expanding Role of Educational Research in Education: A Challenge"; and two panel discussions on problems and needs in educational research, and suggested solutions. Dr. Booker's talk will be published in the March, 1950, issue of the *California Journal of Educational Research.* Those attending the Santa Barbara conference voted unanimously to request that the meeting be made an annual event. The conference was sponsored by the State Advisory Council on Educational Research and the California Teachers Association.

* * * * *

Did you know that:

. . . about four million children in this country, five to seventeen years old inclusive, are not enrolled in any school?

. . . approximately nine million more children are expected to be enrolled in 1959-60 than were attending our schools in 1947-48?

. . . an estimated 95,000 teachers held substandard certificates in 1948-49?

. . . only 77% as many persons completed standard training courses of one to four years for elementary school teaching in 1949 as in 1941?

. . . the average annual salary for teachers in 1948-49 was less than $2,000 in eight states, and less than $1,500 in one state?

. . . 8,611,000 American adults, 25 years of age or older, had less than a fifth-grade education in 1947?

—(Adapted from *NEA News,* October 7, 1949)

Out of the 1,700,000 students who entered high school in the ninth grade last fall, only about one half will remain to graduate four years from now. So reports the National Child Labor Committee in its new publication, *Early School Leavers — A Major Educational Problem,* by Harold J. Dillon. The Committee conducted an investigation to discover causes of early school leaving and the warning signs of vulnerability to school leaving.

The study revealed that the majority (54%) leave school at age 16, and that the great majority leave prior to completing the tenth grade. School records showed that 40 per cent of the school leavers have normal or above-normal intelligence (I.Q.'s of 95 or above), and 60 per cent below normal (below 95 I.Q.). Nearly one-fifth had I.Q.'s above 105. School leavers were not handicapped by frequent changes of residence, as might be presumed, since 83 per cent were born in the state where they went to school, and 80 per cent attended the same school system from the first grade until they dropped out.

* * * * *

The teacher shortage, especially in elementary schools, is apt to be with us for a long time to come, according to the NEA Commission on Teacher Education and Professional Standards. Here are some startling facts:

1. A total of 1,033,994 new elementary teachers will be needed, according to estimates, in the decade 1949-50 through 1958-59. Of this number:
   a. 262,100 will be required to fill new positions;
   b. 559,434 will be needed to replace those who will quit teaching;
   c. 70,000 will replace those who are on emergency credentials;
   d. 142,460 will be required to reduce average class size to 25 pupils.
2. Elementary teaching positions will increase from 643,500 in 1947 to an estimated total of 921,000 in 1957-58, the peak year for elementary school enrollment — an increase of 277,500 positions.
3. If the 1947-48 rate of preparing new teachers continues, there will be an estimated shortage of 621,894 elementary teachers by 1958.
4. The estimated average annual demand for elementary teachers during the decade, 1949-50 through 1958-59, will be 103,399, requiring a production rate of over five times the 1947-48 rate to meet the demand.

The secondary teacher situation, according to the NEA report, presents an entirely different picture. Whereas the supply of elementary teachers falls far short of meeting the demand, it is anticipated that there will be a surplus of 136,298 secondary school teachers by 1956 if the 1947-48 production rate continues.

—(Based on report: "Probable Demand for Teachers in the U. S. for the Decade 1949-50 through 1958-59.")

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THE EDITORS SAY:

We're On Our Way!

WE'VE just attended a launching! In keeping with the times, we might have spoken in rocket terms, but we shall be content to liken the new *California Journal of Educational Research* to the traditional vessel. Our ship appears to us to be seaworthy. So far as our knowledge permits, everyone has been comfortably accommodated on this first sailing.

Editorially speaking, we have just been saying that the first issue of the *California Journal of Educational Research* came off the press according to schedule. It was first seen and evaluated by the editorial board, eleven critical readers who gave the issue an official "OK." But the most severe test will be our readers' reactions. In our January editorial we said, "We hope you'll like us." Do you? If not, let us know why. We are not looking for bouquets; rather, we must have the judgments of our readers to know whether or not we are producing the type of publication that is wanted and needed.

The first issue of the Journal went to over 400 subscribers. We expect that number to increase by the time this issue comes off the press. On the subscription list appear 15 states outside California. We were pleased to note that the subscriptions include a good cross-section of professional interest: teachers, administrators, research personnel, college professors, libraries, state departments of education, state education associations, and others. We anticipate that by the end of the first year of publication, the circulation of the Journal will approach the one thousand mark. Then, perhaps, we shall boast of a rocket launching.

This suggestion may not be needed, but we propose that you save your copies of the Journal for future reference; they will serve as a good source of research information. The annual index will appear in the November issue.

The May issue will be devoted largely to a classified bibliography of California theses and dissertations that have been completed during the past year in graduate schools of education. This bibliography will become an annual feature in the May number. Extra copies of the issue will be available to colleges and universities, but orders should be received by May 1. The price of individual copies is $1.50.

The Expanding Role of Research In Education: A CHALLENGE

IVAN A. BOOKER
Research Division
National Education Association

WITH too much clockwork regularity most research workers are immersed in their daily routines. Each morning brings its round of concerns which sometimes seem trivial. Trees obscure the forest. As professionals, we tend to devolve into craftsmen. So, shall we take a look at the larger job of educational research? Where are we along the road? How far and how fast do we need to move? What directions do we take? How do we get on with the job?

On questions such as these the convictions which I propose to share with you are: (a) research in education IS in the growing stage, in the growth period of its existence; (b) research is needed on many untouched problems; (c) more people should be doing research in education; (d) the research that is done should be of better quality; and (c) wider and more effective use should be made of research findings.

Research in Education is in the Growing Stage

Education is one of the new sciences. The "science" of education is a product of the present century; it is less than fifty years old. Contrast with that the long history of many other sciences, *e.g.*, physics, chemistry, medicine, biology, geology, economics, and even historical research. Is it any wonder that research in education must claim fewer findings than the sciences which have had many centuries in which to work? I think not. On the contrary, there is reason to take pride in what has been accomplished in so short a time, especially in a field in which our measurements must be made on human relationships and responses rather than on inert matter—obviously a more difficult task. Progress has been made; results are being achieved; more can and will be accomplished.

Dr. Ivan A. Booker, assistant director of the NEA Research Division since 1931, came up through the teaching ranks before becoming a research worker. His professional experience includes teaching in the public schools of Illinois and Indiana. He also taught at the following colleges: Indiana State Normal, Reed College, Boston University, and the University of Michigan. He received his Ph.D. degree in 1934 at the University of Chicago. Dr. Booker's article is adapted from an address presented at the First Annual Conference on Educational Research which was held last October at Santa Barbara. The article appears by popular request of those who heard Dr. Booker speak.

If this appraisal is correct, we have no apologies for those who say that education can never be a real science. Our measurements will improve; our results will accumulate. Nor will we be taken in by the fallacy that "all the important jobs have been done in educational research." Many a Ph.D. candidate suspects that this is the case. But we know that it isn't, that we are just beginning. Schiller might well have been talking to us when he said:

> Far must thy researches go, Wouldst thou learn the world to know.
> Naught but firmness gains the prize; Naught but fullness makes us wise.
> Buried deep truth ever lies.

If our research is new and growing, then we must keep in mind that what we are doing is not good enough. We must seek constantly to grow with the job. And finally, as has been implied already, we have not yet "sold" the profession on the idea of educational research. Too many workers in education do not yet accept the conclusion that the way to progress in education lies in the application of the methods of science to the study of educational problems.

Research is Needed on Many New Problems

Partly because research in education is so new, only a few of the problems have yet been explored. I do not mean to imply necessarily that we need *more* studies, although that may help. Probably more important than the number of studies made is a sharper focus, a better selection of problems, an attack on the areas of greatest urgency. There should be studies of long-term and future problems as well as research on the immediate, "emergency" problems; more planning, less expediency. Probably there should be less REsearch, and more fundamental reSEARCH. Even in the most familiar areas, our knowledge is remarkably small. How few *facts*, definitely established and verified, can we claim in such areas as: child growth, the learning process, curriculum, materials of instruction, equipment, housing, school organization, class size, teaching load, and evaluation of pupil progress or evaluation of teaching efficiency? We must sharpen the focus and increase our fundamental research in these areas. Also, we need more genetic studies. Legal research is in its infancy, with only a few people working in that field and scant attention being given by training institutions to methods of research in it. These are a few of the most obvious needs.

Finally, there should be, in my opinion, a great deal more cooperation among the various sciences which touch on the welfare of children. For example, those doing research in education might very well join forces, from time to time, with the psychologists, physiologists, sociologists, architects, and engineers. Studies could be jointly planned and carried out in a cooperative way to draw on the resources of each participating group. Even those of us who work in educational research might well cooperate more often and more full than we do with: city and county bureaus; governmental agencies; the research departments of professional associations; and the research laboratories of colleges and universities.

More People Should Do Educational Research

The report on the status of California school research departments, prepared by the California Teachers Association, pointed out that even in California the provisions for research are rather meager. Many school systems have no research department and no one assigned regularly to do research in education. Space, time, and facilities are limited. Financial support for educational research is often lacking or far too small. And the situation in California, by and large, probably is much better than in most other states. The need is apparent.

Additional personnel should be set to work doing research in education. Funds should be provided to make research possible. The program of research should be taken out of the "fads and frills" category where it now rests in far too many school systems. It is not something to be supported "if there are funls left from the regular school program." When research is well done, no phase of the school program is more essential. The "R" in research ranks in importance with the familiar "3 R's."

Along the same line, we need to improve the status of research workers. Too often they are classed as chore boys whose sole function is to find quick and reasonably accurate answers to other people's questions. In my judgment, that is unfortunate. Research workers worthy of the name should be "professionals." Their status should be comparable to that of other members of the planning and policy-making team. They should be the *askers* as well as the *answerers* of questions. They should be the stimulators and counselors of staff members who engage in research work, just as instructional supervisors give leadership in their respective fields.

Every teacher should be a researcher. Not every one will be an expert on research techniques. But every teacher should be essentially a scientist and approach the work of teaching with the spirit of inquiry. The methods of science are, after all, rather simple: (a) awareness of problems, (b) collection of objective facts and observations, (c) logical and analytical thinking which leads to certain tentative generalizations from the facts, and (d) evaluation and revision of one's conclusions in the light of further evidence. Such an approach is a reasonable one to expect of any teacher. It was one of the ancients, Marcus Aurelius, who said, "Nothing has such power to broaden the mind as the ability to investigate systematically all that comes under one's observation."

If we are to have more people doing research in education on a full-time basis, if research is to be supported adequately, if the status of research workers is to be improved as I have suggested, and if teachers are to adopt the essential methods of research in all their work, better professional preparation is implied — both preservice and inservice. Lack of proper training is not the least of the reasons for the present research shortages which have been mentioned.

Research Work Should be of Better Quality

All of us are keenly aware of some of our weaknesses. We know that the focus should be sharpened — as has been mentioned already. Many times we would prefer to work on more significant problems rather than those which demand our attention. In our so-called "service research," we know how often our results are too slow. We need better methods of sampling and better questionnaires. We need to standardize many of the basic units with which we deal: for example, the "school district," the term "enrollment," and even the "school." Can you tell me, what is a school? If a certain school building houses pupils in grades Kindergarten through Grade IX and the same principal is in charge of the entire group, is it one school? or two? or three? Unless we can define and standardize such simple terms, have we any way to count or measure? Yes, clear definition of terms and the establishment of standard units is a prerequisite to the greater accuracy in educational research, which we know we must somehow achieve. Otherwise, we will continue to meet such criticism as Mark Twain is alleged to have leveled at one group of scientists: "Get your facts first, and then you can distort them as much as you like."

Still another need in the area of method, in my judgment, is better use and less abuse of educational statistics. Better and more accurate procedures will undoubtedly be developed, and should be welcomed and used. At the same time, however, it is my considered opinion that intricacy of formulæ and the compounding of computations cannot offset false hypotheses or inaccurate observations. I am not greatly impressed by efforts to proceed mathematically without an adequate foundation of valid facts.

Finally, I suggest the need for increased cooperation and better integration of effort among those of us who work in the field of educational research. If we could know more about what is being done by others, if we could more often plan and work together, the total result might be considerably improved. Conferences, such as the one you are holding in California, represent a step in the desired direction.

Wider Use Should be Made of Research Findings

Much use is being made of research, to be sure, but not nearly enough. In many classrooms the teachers do not know or seem to care what has been demonstrated as best procedure. Yet, as Aldous Huxley tells us, "Facts do not cease to exist merely because they are ignored." What few things we do know with certainty surely should be put to work. Again, this implies further teacher preparation (both preservice and inservice) in which a strong emphasis is laid on using the results of research. Classroom teachers must catch the spirit of Browning's lines —

> As is your sort of mind
> So is your sort of search; you'll find
> What you desire.

There must be better distribution of research findings, many of which now go unnoticed in theses, special memoranda, obscure reports, and articles in magazines of limited circulation. Further effort is needed to circulate research information. Again, the new magazine of educational research, which is being launched by the California Teachers Association, is an encouraging step in the right direction for your State.

Finally, there is need for better interpretation of our results — something for which all of us are responsible. Most of us need less skill in verbal legerdemain; less skill in restating the commonplace; less facility in transforming the obvious into terminology which is absolutely incomprehensible!

Summary

These are my convictions. In them there is nothing unique, but if they are valid, "'Tis better to be right than to be original." Do they check with your experience? Is it true that:

1. Research is in the growing period — its period of infancy and youth?
2. Research is needed on *many* additional problems — we know so little, for sure?
3. We need more and better research workers — both professional and teachers?
4. We need research of higher quality — even our own?
5. Wider use should be made of research findings?

If these things are true, as I believe they are, then we have the biggest job in education. The day of educational research is at the morning; the year is at the springtime. We can attack our jobs with new vigor, knowing full well that "Facts, when combined with ideas, constitute the greatest force in the world." This is our challenge!

Measuring I.Q. Changes of High School Students

J. MERRITT WINANS
Bakersfield College

DOES the intelligence test score of the honor student rise during the high school years and that of the poor student fall meanwhile? To view the problem in another light, does the learning in high school which is measured by teachers' marks transfer to an intelligence test?

Among previous investigators of the relationship of school learning to intelligence test scores, Lorge (1) found that differences in amount of schooling, measured by highest year attained, were positively related to the intelligence scores of adults. An earlier study by Thorndike (2) had shown that variations in pattern of high school courses taken in one year effected unimportant differences in amount of interim improvement in mental test scores. A similar study by Wesman (3) later found results which essentially corroborated those of Thorndike. Wesman concluded that the defect inherent in this experimental approach was the assumption that all who enroll in a course learn equally from it.

The purpose of the present investigation was primarily to test the hypothesis that achievement in high school, measured by teachers' marks, may be related to interim changes in intelligence test scores. A secondary purpose was to study the trends of I.Q. changes in students at this level in relation to sex and curriculum differences.

Eighth grade and twelfth grade scores on the *California Test of Mental Maturity, Short Form,* were gathered for a low twelfth grade class at a California high school. The twelfth grade I.Q.'s resulted from administration of the adult form of the test by the writer in December, 1948. The eighth grade I.Q.'s, which were the result of administration of the intermediate form of the test by members of the staff of the county school office in April, 1945, were found recorded for 169 of the approximately 300 members of the class. It was discovered that the remainder, who were necessarily excluded from major consideration in the study, had arrived in the community some time after the 1945 testing.

Dr. James Merritt Winans is a psychology instructor at Bakersfield College. He previously taught at San Mateo Junior College and at City College of San Francisco. His article is based on his doctoral dissertation which was completed last summer at the University of California, Berkeley.

Trends in I.Q. Changes in the Experimental Group

Mean I.Q.'s for the experimental group were 103.1 in 1945 and 104.0 in 1948. The gain of .9 points was not significant. Standard deviations in 1945 and 1948 were 13.4 and 11.7 respectively, and the correlation of .68 was found between the two sets of I.Q.'s.

The rise in mean M.A. during the 44-month period was 29.6 months. This gain was not unexpected, since the mean chronological age of the group at the end of the period was about 15 months beyond the ceiling age of 16-0 years, which is established as the time of cessation of mental growth measured by this test.

Mean I.Q. changes which were not considered significant were: college preparatory girls (N = 29) gained 1.2 points; college preparatory boys (N = 20) lost .8 points; commercial girls (N = 22) gained 2.8 points. (No boys were classified as commercial.)

The mean I.Q. of general curriculum girls (N = 57) dropped 3.1 points, a loss which was significant at the .02 level. General curriculum boys (N = 41) made a gain in mean I.Q. of 4.5 points, which, although statistically significant at the .01 level, was not considered genuine for a reason to be explained later.

The mean M.A. gain of general curriculum girls, which was 23.0 months, was significantly less than that of the other four subgroups, whose mean gains ranged from 31.3 to 33.6 months. Thus the amounts of M.A. gain corroborated the I.Q. loss of general curriculum girls, but did not corroborate the I.Q. gain of general curriculum boys. The appearance of this latter spurious gain was judged to be due to the operation of the ceiling age of the test in combination with the fact that these boys were significantly older than the members of the other four subgroups.

When it appeared that some of the 1948 I.Q.'s might be deceptive, inasmuch as they were based on chronological ages variously in excess of the ceiling age, greater emphasis in the remainder of the study was placed on mental age. The M.A. is directly proportional to the raw score on the intelligence test.

Individual changes in I.Q. fell into a fairly normal distribution and ranged from a gain of twenty-seven points to a loss of twenty-four points. The mean *amount* of I.Q. change, irrespective of whether gain or loss, was 8.2 points and the standard deviation was 6.5 points.

When a composite of the 1945 and 1948 I.Q.'s was taken as an indication of level of intelligence, this factor was found not to be significantly correlated with *amount* of I.Q. change (regardless of sign) or with M.A. gain. A similar result was found when the total score on the *Iowa Tests of Educational Development* was used in lieu of a measure of general intelligence. Thus it was found that the bright student was no more likely than was his dull classmate to improve in score on the *California Test of Mental Maturity* or simply to fluctuate in I.Q. during the period under investigation.

Teachers' Marks and Mental Test Score Changes

Teachers' marks for all subjects, except for physical education and military training, were quantified and tabulated in the following categories for the first six semesters (low 9 through high 11): all subjects, academic subjects, nonacademic subjects, English, mathematics, and science. Teachers' marks for low twelfth grade subjects were placed in a separate category.

To test the major hypothesis, that changes in mental test score are related to achievement as measured by teachers' marks, I.Q. gain and M.A. gain were each correlated with the various categories of marks. The resulting coefficients, mostly positive, were of the order of .1 and were not statistically significant.

As a check on this finding, two groups of twenty-six students each were selected by virtue of their ranking highest and lowest in teachers' marks in all subjects for the first six semesters. It was found that the high group did not differ significantly from the low group in I.Q. gain or M.A. gain. As a further check, small groups selected from the extremes of the distribution of M.A. gain were found not to differ significantly in average of teachers' marks in all subjects for each of the first six semesters. Thus it was concluded that, under the circumstances of this investigation, changes in mental test score (both I.Q. and M.A.) during the high school years are not related to achievement as measured by teachers' marks.

Amount of M.A. gain was found to be unrelated to the three reading scores, the vocabulary score, and the total score on the Iowa battery, which was administered in the high tenth semester. Gain in M.A. was also found to be unrelated to scores on the *Carter Study Methods Inventory*, a self-report instrument of seventy-five items.

The 1948 Non-Language and Language sub-I.Q.'s were found, by correlational method, to be equally related to the M.A. gains. (Sub-I.Q.'s were not available in the 1945 data.)

Boys, whose mean Non-Language I.Q. in 1948 was 115.6, were significantly superior in this respect to girls, whose mean was 107.6, and were less variable than girls. No other significant sex differences were found.

Of the six subtests in the *California Test of Mental Maturity*, the first (discriminating between left and right) was apparently of little value for this group, since all students made a high, if not perfect, score on it. On the other hand, the sixth subtest (vocabulary) appeared to be of much greater length and difficulty than was needed for discrimination in this group.

An incidental finding of interest in the 1948 I.Q. data is that the members of the senior class who arrived in the community after the 1945 testing were found to be superior to their classmates. The mean I.Q. of the 116 "late arrivals" who were measured in 1948 was 107.8, with a standard deviation of 14.1. This mean exceeded by 3.8 points the mean of the experimental group which, it will be recalled, was 104.0. The difference, which is significant at the .02 level, was found mainly in the upper quartile and was more marked among boys than girls.

Conclusion

In summary, the principal conclusion of the study is that, although appreciable changes in I.Q. may occur during the high school years, these changes may not be related to the differences in interim achievement which are indicated by teachers' marks. It is possible that this negative finding may be due to a dilution of teachers' marks by factors other than achievement, or to a characteristic of the intelligence test used, such as the fact that fifty per cent of its content is non-language.

Regarding the I.Q. changes, which amounted to as much as twenty-seven points and averaged eight points, it must be kept in mind that the genuineness of these data is dependent upon the high reliability coefficient of .93 cited in the manual for the forms of the *California Test of Mental Maturity* used in this study.

So far as the influence of differentials of scholarship is concerned, this study indicates that the I.Q. is stable and resistant to change. I.Q. change, however, did appear. The reasons for such change might well be the subject of further investigation. In particular, the investigation might seek the reason for the significant drop in I.Q. noted for girls in the general curriculum, a drop which could possibly be due to inadequacies of the content of that curriculum or to poor motivation of students enrolled in it. The problem merits further study.

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Criteria For Determining the Adequacy of School Districts in California

C. C. Carpenter
Los Angeles County Schools

During the last twenty years, while the population of the State has greatly increased and concentrated in certain areas, there have been only minor changes in school district organization in California. School districts originally were intended to serve a specific community, but this purpose has been outgrown in many years.

Furthermore, the purposes and objectives of education have expanded. The educational services required to equip children to live in the modern world have increased greatly. It is imperative that school district structure be organized best to supply these needs.

Recent legislation reflects an interest on the part of the State in urging that school districts be organized in such a manner as to provide the best educational opportunities for the money expended. The California Legislature passed the Optional Reorganization Act in 1945 requiring that all districts in the State be studied. This Act was amended in 1949 in an effort to make it more functional and more democratic.

It is important that criteria be developed to determine the characteristics of an adequate school district. The author has attempted in the present study to answer the following questions:

1. What are the educational services that should be provided by a school district?
2. What financial structure is necessary to provide adequate educational services?
3. How large need a school district be?
4. What social and economic factors are involved?

Basic Assumptions

In developing a set of criteria for use in determining the reorganization of school districts, the following basic assumptions have been made for the purpose of this study:

1. The state, with the reasonable participation of the school district, is responsible for an adequate educational program for all persons who can benefit.

Dr. Charles C. Carpenter, assistant superintendent of the Los Angeles County schools, has spent the past 25 years in teaching and administrative work in California. In addition to his present position, which he has held for seven years, Dr. Carpenter also serves as lecturer in education at the University of Southern California. His article is based upon his dissertation which was completed in 1948 at the University of Southern California.

2. The school district has been created by the state, and by the same token may be altered completely or abolished by the state.
3. The local shcool district has been given the responsibility of operating its schools and is autonomous in those functions granted to it by statute.
4. The concept of different levels of education is giving way to the concept of a continuing educational experience of the child from the kindergarten through the high school or junior college.
5. The type of school district that can best meet the needs of a child is the unified school district.

What are the Educational Services that Should be Provided?

It is recognized that the educational services listed here do not include all of those that may be desirable or adequate for every school district; however, the services considered probably furnish a large enough sampling to indicate satisfactory criteria. School districts at the present time vary greatly in size in California from the more than 900 one-teacher schools to large metropolitan areas. Considering the State as a whole and using as a reference the literature in the field, it would seem that for practical purposes a minimum administrative unit of 1,000 pupils is desirable. Such a school district should employ approximately 40 teachers, requiring one superintendent in charge of the educational program and an assistant superintendent in charge of business, finance, and special services.[1]

From the literature in the field based upon accepted practice and adapted to California conditions, it would seem safe to assume that there should be one supervisor to approximately 35 teachers. This does not necessarily imply the central office type of supervision. For furnishing adequate instruction at the various levels, a ratio of 25 pupils per teacher is recommended for California. The attendance unit should be large enough so that no teacher should be required to teach more than one grade.

The literature in the field in regard to pupil-teacher ratios in the special fields is limited, yet all authorities are agreed that these services are an essential part of the school curriculum. The following ratios seem justified:[2]

1. One nurse for every 1,000 pupils.
2. One physician for every 3,000 to 4,000 pupils.
3. One attendance officer and clerk for every 2,500 pupils.
4. A library at every school.
5. Food service should be available to every child.

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[1] These standards may be compared with those of national studies (1:79-88).

[2] These California recommendations may be compared with those of the National Education Association (2:17-18, 21).

6. Adequate provisions for the extension of the educational program not only for adult education and kindergarten, but also for the brilliant, the physically handicapped, and the mentally retarded.
7. One psychologist for every 1,000 to 1,500 pupils in the elementary school and one for every 500 to 600 pupils in the secondary school.

What Financial Structure is Necessary to Provide Adequate Educational Services?

The cost of providing complete educational services for selected city and unified districts was studied. The most valid criterion found for ability to support this cost was the assessed valuation per pupil in average daily attendance in both the elementary and high school levels, because both local tax support and equalized state aid are affected thereby. On this basis the assessed valuation per pupil for the five selected high school districts varied between $10,353.13 and $58,527.01.

For seven selected elementary school districts the variation was between $5,772.46 and $24,231.52. From this local factor alone it seemed that only some of the elementary school districts would be able to provide complete educational services when unified, but when the State equalized apportionments were considered, it seemed likely that these districts could provide adequate services.

The two union high school districts showed the same result. State equalized aid made the assessed valuation per pupil much less important where current expense items were concerned.

When capital outlay was considered, the assessed valuation per pupil assumed a much greater significance. The assessed valuation of the district limits its bonding capacity. Districts having many children and a low assessed valuation cannot properly house their pupils.

If one or more elementary school districts wish to withdraw from a union high school district and form a unified school district, the following questions should be answered:

1. Is the assessed valuation of the area withdrawing sufficient to amortize the present outstanding bonded indebtedness of the area, and also to construct the necessary new secondary school plant? (As of 1948 this would require approximately $50,000,000 of assessed valuation, unless school buildings are already located in the area that can be used for high school purposes.)
2. Is the original district adequate in all respects after withdrawal of one or more districts?

The greatest obstacle to unification of elementary districts in Los Angeles County would be the financing of a new high school plant. If the present type of high school organization and present building costs are assumed, it would require $1,500,000 to build and equip a high school for 1,000 pupils. To raise this amount in bonds would require an assessed valuation of $30,000,000. In addition to this, most high school districts already have a considerable amount of bonds outstanding for which the new unified district must continue to be responsible. This would require an assessed valuation considerably in excess of $30,000,000. Of the seven districts studied in Los Angeles County, only two had more than $30,000,000 assessed valuation, and both had high schools within their district boundaries.

Elementary districts are, therefore, limited by their assessed valuation in forming unified districts, provided there are not suitable buildings within their boundaries that may be used for high school purposes.

The effect of using present high school districts in Los Angeles County as a basis for forming unified districts was studied. In every union high school district in the county the effect on the component districts would be to equalize the assessed valuation per pupil. However, there was a wide range in assessed valuation of the proposed unified districts, varying from $5,309 to $26,433 per elementary pupil. The component elementary districts, however, varied from $2,162 to $66,862 per elementary pupil.

How Large Need a School District Be?

The most efficient unified district should have an attendance of 10,000 children. In California such an enrollment is not always possible and a more conservative enrollment of 1,500 has been given as a minimum by several authorities in the field. Educational services in districts of this size must be supplemented by the services of the office of the county superintendent of schools or by cooperation of several districts.

Generally, school districts that employ fewer than fifty teachers do not provide the adequate minimum expenditure for general control. For attendance areas there should be a minimum of six teachers for a six-grade school with 150 pupils, and eight teachers for an eight-grade school with a minimum of 200 pupils.[3] A junior high school or high school attendance area should serve not less than 250 pupils with ten teachers. However, if adequate services are to be provided the high school should be considerably larger.

In rural areas the size of the attendance area may be determined by the distance pupils may be reasonably transported. Under good conditions transportation routes may be as long as thirty-five miles. Maximum one-way trips may be defined for practical purposes as fifty to sixty minutes for high school pupils and twenty-five to thirty-five minutes for younger children.

Unification has been opposed by some wealthy elementary districts on the basis that it would increase their taxes and decrease the educational services that are now being provided. California, however, is wealthy enough to provide an adequate education for all of its children. If, after the best type of school district organization is established, more State support is needed, it could be provided by proper legislation.

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[3] Compare with related studies (1:79-82).

Social and Economic Factors Considered

The importance of organizing schools in relation to the community that they serve has been greatly emphasized by current authorities.[4] The following criteria are recommended:

1. School attendance units should be coterminous with the community boundaries.
2. School administrative units should form larger community patterns.
3. Several attendance areas may constitute an administrative unit.
4. Attendance units and administrative units should not necessarily conform to political units.
5. The administrative unit should be as flexible as possible.
6. The attendance unit should be thoroughly democratic.
7. The administrative unit should best fit the interests, the economy, and the culture of the area.
8. Provision should be made so far as possible for local participation, initiative, and control by the people of the district.

Conclusions

The unified school district should provide all educational services recognized by educational authorities. It will provide experiences and give direction to the learner, leading him to the accomplishment of the desirable objectives of self-realization, human relationships, economic efficiency, and civic responsibility. The providing of these services requires qualified personnel, proper organization, and adequate leadership. The adequate school district should provide independently, as far as possible, the following: administration, both educational and financial; health; cafeteria; guidance; audio-visual; library; child welfare and attendance; and extension of the educational program upward and downward to meet the educational needs of all of the people in the school district. The school district should be able to provide these services completely; however, it is recognized that some districts will not be able to provide complete educational services and will need supplementary services from the office of the county superintendent of schools, or will need to cooperate with other school districts in pooling their educational services.

Some other method must be found for providing funds for capital outlay. By forming larger unified school districts, a more financially equalized educational program could be provided for all the children in the State, and funds for school buildings. The question of providing capital outlay on an equalized basis and putting some plan into effect is necessary.[5] The planning, locating, and financing of school buildings would be considerably simplified by unification. School transportation could be more efficiently and economically planned.

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[4] See Bibliography (1:69-74).

There is some reason to believe that districts can be too large. The present pattern of school districts, especially the high school district and the large elementary district, is not necessarily an adequate unit of administration. Areas, especially established districts, need to be examined carefully to determine whether they would qualify as the best possible basis for forming a unified district. It is imperative that administrative units and attendance units not be confused. An attendance unit should conform to the natural sociological boundaries of the community, but not to political subdivision lines. It should be large enough to provide adequate educational services for that segment of the school program which it serves. An administrative unit may and in most instances would be composed of several attendance units, and should be based upon larger sociological areas in so far as possible.

A unified school district can be too large. It seems that when an area has two or more complete sociological units and these areas are independently able to provide adequate educational services, they would be justified in forming independent school districts in order to provide for greater local participation, initiative, and control.[6]

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[5] Recent legislation empowered by passage of Proposition No. 1, November 8, 1949, is the first step toward this objective.

[6] See Bibliography (3:41-44).

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This country faces a tragic paradox. Although teaching is the most important profession in a democracy, the education of teachers is the poorest of all professional departments. Millions of dollars have gone to medical schools and to colleges and institutions of science and technology. During the war, atomic research alone consumed billions. Yet, amid unparalleled generosity to other professions, almost no one has thought it worth-while to endow schools of education. (Excerpt from an article by Benjamin Fine, *New York Times*, Sunday, October 30, 1949, quoting from a speech by Dr. Edwin R. Embree, of the Greenwood Foundation.)

Study of Terminal Vocational Students[1]

STANLEY L. COMBS
University of Redlands

THAT the terminal vocational student presents a critical problem is generally agreed by junior college educators and administrators. Since the three colleges, some of whose students were chosen for an analysis in this investigation, show a diversity in locale, organization, and program, it is felt that these students present a good cross-section of California terminal vocational junior college students in general. The statistical analysis of these young men and women and its interpretation in terms of their needs in general education should serve as an aid in solving a part of the critical problem of the terminal vocational student in junior college. With this in mind, a proposed curriculum in general education for such students is suggested.

Proposed Curriculum in General Education

Basic concepts of general education have been described by many educators and investigations. Some list as few as two major areas, *i.e.*, the need of the individual as he develops, and those of the individual in his relation to a democratic society. The needs of students as described in different concepts of general education areas seem to be comparable; however, the names assigned to them may vary.

General education for the mass of youth at this level must demonstrate a functional relationship to the common needs of man. Such needs usually include those which pertain to health of the individual and society; to rearing and educating the young; to governing the population in accordance with democratic principles; to satisfying aesthetic and spiritual needs and providing recreation; to using, developing, and conserving natural resources; and to finding a job and making a living.

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[1] This is the second half of Dr. Combs' article which appeared in the January issue. The first installment presented an analysis of the terminal vocational student, while the present installment describes a proposed curriculum in general education to meet the needs of such students.

Dr. Stanley L. Combs holds the rank of associate professor of education at the University of Redlands where he has taught for the past two years. He took his undergraduate work at the University of Colorado, and graduate work at the following istitutions: University of Southern California, Oxford University, University of Washington, and the University of California at Los Angeles. Dr. Combs' article is based upon his doctoral dissertation which was recently completed at the University of California at Los Angeles.

With these needs in mind, basic areas of general education are here called:

Personal Development (Relation to Self)
Human Relationships (Relation to Others)
Socio-Civic Responsibilities (Relation as a Citizen in a Democratic Society)
Vocational Life (Relation to the World of Work)

If the junior college is to train its students in all of the above basic areas of general education, it should first of all develop its guidance program. One function of an adequate program of guidance is to lead the students into each area of general education so that no student remains as one-sided as this investigation reveals. This problem may be solved in two ways: (1) solely by required general education courses within the junior college curriculum, or (2) by a combination of a required core with a more indirect and subtle approach of giving students training in general education in such a way that they are almost unaware of the deviation from the direct road to their vocational aims.

To illustrate this "indirect" approach, as well as a required core, the following curriculum in the four basic areas of general education is suggested for this group of students.

AREA OF PERSONAL DEVELOPMENT

I. REQUIRED CORE

A. *Course in Individual Phychology*

In this course the student discovers his strength, his weaknesses, his limitations. He is given self-assurance, and his personal interests are defined and developed. From the tests he is given, he learns to evaluate the results in terms of his own capacities. There is also training in mental hygiene so that the student can recognize some of the causes of emotional maladjustments and their remedies.

B. *Course in Communication Skills*

The student receives opportunity to develop facility in the use of the mother tongue. Since he lacks verbal skills, he is encouraged to read for fun. He practices selective seeing and hearing to aid him in judging what is important and should be retained from experiences coming to him through these two senses. He is encouraged to use language as a means of human communication: in mock job interviews and sales conferences, in conversations with co-workers, the boss, and business contacts, and with his family and friends. He learns to write simple personal and business letters, forms, letters of inquiry about jobs, etc.

C. *Course in Physical Health and Recreation*

First he is given an understanding of his own body and how to maintain its efficiency. Rather than the traditional scientific study of human physiology, the student learns of the general functions of the body, including reproduction. In addition, he learns the importance of cleanliness, adequate diet, and rest, effects of poisons, excessive use of stimulants, and caution in the use of drugs, medicines, and panaceas. Training in first aid is also given and some knowledge of psychosomatic medicine, *i.e.*, how emotional disturbances can affect physical health. Integrated with all of this, an emphasis is placed on sports which these young men and women may pursue in adult living: golf, tennis, badminton, bowling, and archery.

II. THE "INDIRECT" APPROACH THROUGH VOCATIONAL COURSES

Here the student is shown the relation of the specific vocation to himself and to his world. Strong emphasis is given the fact that mechanical and industrial skills, business and agricultural techniques cannot be divorced entirely from intellectual and emotional skills. Exhibits of plastic and graphic arts placed in the vocational classrooms help to produce aesthetic appreciation.

Character training is accomplished in a large part through vocational training. Since the occupational aim of the terminal vocational student is, on the whole, specific, here is the place to inculcate the traits of heart and mind which constitute the basis of good living and good working. In this instance, the eraining for integrity and development of moral and spiritual values, the role of the teacher is perhaps more important than it is in any other field of learning. He sets the example of the well-integrated, poised, adjusted, socially-conscious, right-minded individual. The teacher must not lose sight of the fact of the continuing interrelationship between the vocational field and the areas of general edecation.

AREA OF HUMAN RELATIONSHIPS

I. REQUIRED CORE

Course in Marriage and the Family and Other Human Relationships

In this course, beginning with the student as he is today, an understanding is given of immediate relationships within his own family. He receives preparation for his role in marriage. He learns of effective participation in a democratic family. He becomes aware of problems he may encounter when he marries and establishes a home. Such problems may include budgeting, banking, buying, parenthood, in-laws, possible pressures and conflicts in marriage. The physiological functions of marriage, including reproduction, are interrelated with the course in physical health.

II. THE "INDIRECT" APPROACH THROUGH VOCATIONAL COURSES

Perhaps most of the development of a student's understanding of other human beings comes in ways other than through required courses. Relationships with employers and with fellow-workers is envisioned within the vocational area. The understanding of one's fellow classmates and relationships with them is a continuing process, nurtured by all teachers and leaders and especially so in the human interplay of students learning about jobs.

AREA OF SOCIO-CIVIC RESPONSIBILITIES

I. REQUIRED CORE

Course in Socio-Civic Rights and Duties

Relations in this course are those of a citizen in a democratic society. They are institutional as opposed to face-to-face contacts. The student is made aware of such institutions as school, church, community, state, nation, world. He is given an understanding of his socio-civic responsibilities which may include social problems of housing, crime prevention, labor and management, disease, etc., and civic problems involving local, state, and national governments. He recognizes problems of today's world as they affect him. He is imbued with his own worth as a citizen of a democracy so that he wants to participate in governmental affairs. He understands how he shares the responsibilities and privileges of a democratic society so that his future cooperation may prove not only good for society in general but of great satisfaction to him personally. To serve these students well, this course begins with their present problems, with what they know, working back in time (to the past related to now) and out into space (from the community to the state, nation, and world).

II. THE "INDIRECT" APPROACH THROUGH VOCATIONAL COURSES

The awareness of socio-civic rights and duties is developed as part of vocational training. The problems of tolerance and the understanding of minority groups, for example, may well be handled in any class in which a student of a minority group (race, color, or religion) is enrolled. Here the attitude of the teacher is again of particular importance in guiding student attitudes. Socio-civic responsibilities of vocational areas are emphasized.

AREA OF VOCATIONAL LIFE

I. REQUIRED CORE

In addition to specific training for effective service in a chosen vocation, requirements here include occupational orientation (*e.g.*, the fields in which there is present demand, qualifications necessary, etc.) and economic information (*e.g.*, salary levels). It also encompasses an understanding of technological advances and how the worker must adapt himself to them. He learns of any problems his job may create in his personal life (*e.g.*, night work).

II. THE "INDIRECT" APPROACH

Since the terminal vocational student, as shown by data gathered for this study, seems to feel that required courses other than those in his occupational field are unnecessary and time-consuming, one of the best means of gaining his interest in general education is by relating problems of vocational life to each area. In a course in individual psychology, he takes vocational aptitude and interest tests. These give him an opportunity for self-analysis in relation to his chosen occupation. The course in physical health may include information about industrial accidents and diseases and group health insurance. Within the required course in socio-civic rights and duties, the student learns something of labor-management relations, the purpose and functions of labor unions, labor legislation, etc. The use of vocational information within the areas of personal development, human relationships, and socio-civic responsibilities can be the most dynamic means of motivating the interest of terminal vocational junior college students in the whole general education program.

Implications for General Education

These students are specific in their aims — occupational and educational; they know what they want. Neither dabblers nor drifters in education, they are serious in pursuit of training which will gain them early and effective entrance into their chosen work. They should be given a unified program to further these aims. They do not appear to be much interested in learning of "cultural" subjects or to have the scholastic abilities to profit much by such studies. General education for these students needs to be dynamic and specific, planned in terms of its significance to the individual, and should lead him from the particular into broader educational fields.

The definite occupational aims of these students may be in part a result of their socio-economic backgrounds, and they seem to be in a hurry to go to work. In many cases they are already working at employment related to their chosen aims.

In planning this program of general education, therefore, the element of time must be taken into consideration. To this group of young men and women, time is an all-important factor, since they are under pressures from many directions. These pressures may come as advice from business and industry to take many specific courses in preparation for technical adequacy. Other pressures, imposed for similar reasons, may come from junior college vocational instructors, who are likely to feel that their students need to take many courses in addition to the required minimum in their major fields. A third group of pressures may come from within the students themselves. These young men and women seem to have inner anxieties which impel them to hurry along with their educational preparation so that they may more quickly go to work. Some of these anxieties may result from financial worries. Others apparently come from emotional conflicts at home and the desire for independence. In any case, terminal vocational students are likely to avoid courses which appear to have no direct bearing on the attainment of their occupational goals.

These men and women tend to show better than average manual or mechanical abilities, but only moderate to low verbal ability. These facts are supported both by a study of their hobbies — manual and athletic — and by an analysis of high school grades and achievement and psychological test scores. All of the latter fall in low deciles of national norms and indicate a need for a special curriculum for terminal vocational junior college students.

The importance of a vital general education for this group of students is especially intensified by the era in which they live. Unstable social and economic conditions and chaotic world affairs tend to put pressures on human beings. Only through an understanding of the problems to be faced may these pressures be released.

The planning of such a curriculum in general education—a curriculum designed to fill the needs of terminal vocational students and attempting to give them preparation for well-balanced adult living—can be a dynamic challenge to a junior college.

Parents Forecast Enrollments

GEORGIA SACHS ADAMS
Pasadena City Schools

WHEN school opened in September, 1949, parents of the Jackson School, Pasadena, found that all of their first and second grade pupils and a large percentage of their third grade pupils had to attend half-day sessions. Instead of expending their energy in discussions and petitions, the group decided to carry on a survey to determine the number of children of pre-school age in their district and the number of children now attending private schools who would probably return to public schools if half-day sessions were discontinued.

The survey was undertaken to accomplish two purposes: (1) provide clear-cut data concerning anticipated building needs so that plans could be projected to handle the peak load of pupils, and (2) provide data as a basis for setting the district boundaries for the proposed new elementary school in the adjoining area.

A committee was appointed which included four couples from the Parent-Teacher group. The president of the Association and the principal and secretary of the school were ex-officio members. Members of this committee pooled their thinking concerning the questions they would like to ask and drafted a letter to parents requesting their help as surveyors. The response was excellent. Approximately one hundred parents volunteered to call at each home on the four sides of a single block and thus do their share in solving a problem which was of concern to all of them.

At this point in their deliberations, the committee felt the need of professional assistance in refining their survey form, in planning their instruction session for cooperating parent surveyors, and in the summarization of the data. With the permission of the superintendent, the school research coordinator accepted this responsibility.

The committee decided to use a 4″ x 6″ card to record the data for each child. Data regarding a vacant lot, a house under construction, or a vacant house were recorded on a card; similarly, a minimum of data concerning a home in which there were no children were recorded on a card. For a home in which there was more than one child, data for the first child

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For the past nine years, Dr. Georgia Sachs Adams has served as research coordinator of the Pasadena City Schools. Her professional experience includes summer school teaching at the University of Southern California, University of California at Los Angeles, and Claremont College. She is co-author (with Dr. John A. Sexson) of "Progressive Tests in Social and Related Services." Dr. Adams is a member of the editorial board of the California Journal of Educational Research.

were recorded on a card which also included data concerning the home (owned or rented, trailer, etc.); data for other children in the family were recorded on subsequent cards for the same address.

The form, as finally approved, included questions regarding home ownership, date on which the family had moved to the Pasadena City School District, date on which the family had moved to their present address; name, age, and birth date of each child; and information concerning school attended by children of school age. For children of elementary school age attending private or parochial schools, the surveyor was instructed to ask: "Where will he (or she) go to school next fall?"

The committee members decided that since they were taking the time to visit each home, they might just as well obtain information concerning children of school age as well as those of the pre-school years. A parent-teacher association which was less well motivated, however, might do well to limit their inquiry to children of pre-school age — information which is most significant for school planning.

When the form was agreed upon, approximately 100 mimeographed cards were prepared and were used by committee members in a try-out experience: (1) to see if they desired to revise the form in any way, (2) to help them prepare written instructions for surveyors, and (3) to increase the effectiveness with which they could handle their instruction meeting with parents. After this try-out experience, the form was printed in the college print shop, and a sheet of instructions was developed.

The school secretary was released for one and a half days, provided with an enlarged map of the school district, and given the responsibility for assigning areas to parents. In so far as possible, a parent was assigned to his own block; otherwise, to one close to his place of residence. An attempt was made to equalize the load as nearly as possible, dividing some blocks in which there were multiple-family dwelling units and making other adjustments. The city directory was of great value in attempting to equalize the loads of surveyors.

In order to make the data as useful as possible, the Jackson district was divided into seven enumeration areas or zones. These zones were defined by the Research Coordinator on the basis of natural boundaries, transportation barriers, and hypotheses concerning possible adjustments in district boundaries as a result of the building of the proposed school. These zones were outlined by the clerk on her enlarged map of the school district. The names of volunteer enumerators were arranged in alphabetical order on a master list and were assigned numbers serially. The clerk, as she made her assignments of blocks, recorded on each block the number of the surveyor or surveyors assuming responsibility for that block. She also prepared for each surveyor the following two aids for their work:

1. A 4″ x 6″ card which contained the following information:

   Name, address, and telephone number of the surveyor
   The official number assigned to the surveyor which he was to record on all his cards
   The zone in which he was working, which was to be copied on all his cards
   A rough drawing of the area he was to cover (to avoid misunderstanding and possible duplicatoin of effort)

2. A long strip of heavy ruled paper, approximately three by eighteen inches, headed with the name and number of the surveyor and the letter of the zone in which he was working. On these strips, the surveyor was to record serially the number of each house in his block with such notations as vacant house, house under construction, etc., or if an occupied dwelling, with the number of children living at the address. This strip was used by the surveyor to keep a record of his own work, homes to which return calls had to be made, and the like.

Both of these aids were of service in checking and summarizing the data, as well as in its collection.

The instruction meeting was handled entirely by the parent committee. The Research Coordinator was in the audience, but found it unnecessary to supplement the work of parent leaders. During this meeting, it was stressed that the role of the surveyor was to obtain data for one specific purpose — to help in the planning of the building program. The information obtained was confidential; violations of residence restrictions (such as use of guest houses) or even of the compulsory education laws were not to be reported. Persons furnishing information were told that data supplied were to be used solely for research purposes.

With the sheet of instructions, each surveyor was given a form which he was to fill out and return with his cards. This form was designed chiefly to remind the surveyor of the detailed instructions he was to follow. This check-in form read as follows:

A check in front of each number or letter indicates completion of task.

1. Arranged the cards in order
   ☐ a. By streets
   ☐ b. By numbers on each street
☐ 2. Turned in a card for each vacant lot
☐ 3. Turned in a card for each vacant house
☐ 4. Turned in a card for each house without a child
☐ 5. Turned in a card for each child
☐ 6. Turned in the Master Card
☐ 7. Recorded on each card the number of children in the family

Signature: ______________________________
Address ______________________________ Tel. No. ____________
Date ______________________________

All parents had been informed of the purposes of the survey through the initial letter from the Parent-Teacher Association and the principal, in which their cooperation had been solicited. It was most important, however, that other residents of the district be informed of the purposes of the survey. For this reason, publicity was given to the survey in both local newspapers. In one of the papers, an attractive picture was used in which the co-chairmen of the committee were seen interviewing a family of father, mother, and three appealing pre-school-age children. Such publicity helped to dignify the project and insure the surveyor of a welcome to the home. In only one instance did a parent refuse to give information to the surveyor.

In the compilation of the results, clerical assistance was provided by the central office. A considerable proportion of the time required for the summary was spent in checking to make sure that all returns were in, that there was no duplication, and that the cards were properly filled out and labeled by zone. In a comparatively few instances, surveyors had failed to call back when there was no one home; in these instances, a form letter and additional cards had to be mailed to the address. This procedure had to be used also in the case of a few pre-school-age or private-school children for whom birth dates were not supplied. On the whole, the returns were excellent.

On the basis of this survey, the following types of summaries were easily compiled:

1. The number of children by age groups in each of the enumeration areas or zones.
2. The number of vacant lots, houses under construction, and vacant homes in each zone.
3. Data regarding home ownership, length of time families had lived at present address, and length of time families had lived in Pasadena (by zones).
4. Average number of children per occupied home (by zones).

These data are of considerable value in picturing immediate and future school housing needs in the area studied. The technique used and the project should be of interest to parent-teacher groups in other communities.

* * * * *

"Educational administration has developed as a result of research, and only in so far as research provides the framework for the school program as it emerges, takes shape, and progresses will that program continue its pattern of advancement." Excerpt from Dr. Herold C. Hunt's address to the 1949 annual meeting of the American Council on Education. (*The Educational Record*, 30:328, July, 1949.)

Vitalizing the Third-Grade Social Studies Program

HAROLD SPEARS
San Francisco Public Schools

FILM strips, plastic-covered study prints, sound transcriptions, and highly illustrated booklets, all pitched to third-grade ability, are among the integrated classroom materials that have been developed in San Francisco to vitalize the third-grade social studies program.

This curriculum program has been highly satisfying to everyone connected with the work. It is curriculum development that has gone beyond the course-of-study stage over into the area of classroom materials.

San Francisco's Social Studies Sequence

The sequence of the social studies course in the 86 San Francisco elementary schools is not unusual, but is highly satisfying to most of the teachers. It is as follows:

Kindergarten: Home and School
First Grade: Home and School
Second Grade: Home, School and Neighborhood
Third Grade: San Francisco and Bay Area
Fourth Grade: California
Fifth Grade: United States
Sixth Grade: The World Today

Naturally, books for the kindergarten, first, and second grades are easily obtainable from educational publishers. Home, neighborhood, and school — *the known* — are standard subject matter found in the books of all companies. Likewise, there is no real problem with respect to either books or visual aids in the fourth grade. There is a good state-adopted social studies textbook on California; the book is supplied by the State.

(The author included the names of many participating teachers and laymen. In following editorial policy, the names were deleted from the article. — *Editor.*)

For the past two years, Dr. Harold Spears has served as assistant superintendent in charge of elementary schools, of the San Francisco Unified Schools. Before assuming his present position, he had been curriculum director in San Francisco. He formerly taught in the public schools of Indiana, Illinois, and New Jersey. He has had teaching experience at all school levels from elementary through teachers colleges and graduate schools. Dr. Spears has published several books and many professional articles. His most recent publications are: "Some Principles of Teaching" (Prentice-Hall, 1949), and "The High School for Today" (American Book Company, 1950). Dr. Spears received his doctorate in 1939 at Columbia University.

The third grade has been the orphan. Only the more ingenious teachers have had a teaching kit dealing with San Francisco, and it was usually made up of pamphlets, maps, and similar materials developed by the Chamber of Commerce and business houses for adult consumption. *Watering down adult literature has never proved to be educationally nourishing for young children.*

Years ago a group of teachers wrote a book about San Francisco, but it has long since gone out of print. It had never been supplied in sufficient quantity, and was reputedly written at a higher level than the third grade.

Materials Used

The materials in this integrated third-grade project include:

1. Six booklets, 32-page, 9 by 10 inches, liberally illustrated, printed in large type and written on the third-grade level. The titles of the books are:

San Francisco Today (General Orientation)
In and Out of San Francisco (Transportation)
Fun in San Francisco (Recreation)
At Home in San Francisco (Neighborhood Communities)
Early San Francisco (History)
Work in San Francisco (Occupations)

2. Eight film strips, 12 photographs to a film, with captions also written at third-grade level. The titles of the film strips are:

The Port of San Francisco
Neighborhoods of San Francisco
An Automobile Tour of San Francisco
Cities and Towns Around San Francisco Bay
Going to Work in San Francisco
Workers in San Francisco
The San Francisco Civic Center

3. A sound transcription which brings to the classroom the typical sounds heard in San Francisco, such as the cable cars, the central engine room of the cable cars, airplanes, traffic, the bells of Mission Dolores, ship bells and whistles, fog horns, the surf, seals, animals at the zoo, trucks, buses, passenger cars, the clang of the traffic signals, the "one-lunger" fishing boats, and trains. The public schools' radio station has its own sound truck for developing transcriptions.

4. A set of 35 photostatic prints, 8 by 10 inches, of early and present-day San Francisco, plastic covered, for classroom use.

5. A study-guide for teachers explaining the use of the student materials described in the previous four points.

6. For teachers, a set of miscellaneous materials to provide additional background information collected from governmental agencies and private firms.

Production Schedule

In an inservice training venture, it is not difficult to get a group of teachers to put in extra hours if they feel that their classes will benefit as a result. In this project not-too-distant dead lines were set for the material on the assumption that teacher committee members deserve and can receive early returns from their investment in time and energy.

The idea of this project, and the early planning, emerged as late as March, 1948. The following production schedule was followed:

1. The first booklet, *San Francisco Today*, appeared September 1, 1948, and each child was given a copy. The first printing was 9,000 copies, and the second run of 10,000 soon followed.
2. One set of plastic-covered study prints was delivered to each of the 86 elementary schools in early October, 1948.
3. The second booklet, *In and Out of San Francisco*, was completed December 1, 1948. The run on this was 19,000 copies.
4. On December 1, 1948, four of the eight film strips were delivered to each school, two being correlated with each of the first two booklets. Although all eight strips were developed at the same time, four were held in the Central Office until some of the later books were printed.
5. The sounds were transcribed, and in rough form the platter was tried out in ten schools; five hundred copies of the final transcription are in use.
6. The third book, *Fun in San Francisco*, was completed in March, 1949; 19,000 copies were printed.
7. The fourth book, *At Home in San Francisco*, was delivered to the schools in June, 1949.
8. The fifth and sixth booklets, *Early San Francisco* and *Work in San Francisco*, came from the press during the first term of the 1949-50 school year.
9. Another 200 sets of the eight film strips and plastic covered study prints were ordered.

A Cooperative Enterprise

This project is a good example of cooperation of governmental, educational, civic, philanthropic, and private business organizations.

The Rosenberg Foundation, of San Francisco, contributed $10,000 to the project on the basis of community betterment. This was supplemented by $8,000 of school funds. The $18,000 will finance the entire project. About $5,000 will be used for films, photographs, transcriptions, and study prints. Outside services call for $2,000, and the other $11,000 for printing costs.

A committee of teachers, with a competent principal as chairman, wrote the books under the general supervision of the assistant superintendent in charge of elementary education. The project has assumed the characteristics of an inservice education program. All of the work was done during spare time with the exception of three teachers leaving their classrooms for three weeks to work on copy. Although only twelve teachers are serving on the committee, many more have helped. For instance, it has not been uncommon for a cooperative story on the subject, developed in a classroom, to become a part of the final copy of a book.

Superintendent Herbert C. Clish has encouraged the project at every step with suggestions as well as administrative action.

The City Planning Commission, a branch of the local government, contributed the services of a staff artist. The chief of the Master Plan Division acted as contact man with the office of the assistant superintendent in charge of elementary education. One outside part-time consultant was employed to help in making contacts with other agencies for photographs, clearing information, arranging printing contracts, and so forth. As a regular city planning consultant, he gave help to the committee also in the planning and preparation of copy. A member of the San Francisco Planning and Housing Association also contributed valuable research material.

Scores of public agencies and private organizations provided photographs and information. Among these were banks, newspapers, manufacturing concerns, federal agencies, the departments of the city government, chambers of commerce in the Bay Area, tourist bureaus, trade publications, steamship companies, air lines, bus lines, and railroads. The police department cooperated by holding traffic to permit essential photographs to be taken. Ninety-six photographs were used in the film strips, and about nine or ten in each book. In addition, thirty-five prints were used in the classroom set of study prints.

Adapting the Materials

The films, textbooks, and other materials deal simply with all phases of the city — the people, the geography, the climate, the sections of the city, the way people make a living, recreation, transportation, and so forth. There is a bit of the "city of the future" in the material, expressed in a manner that is readily understood by younger children. The help of the City Planning Commission was reflected here. Every book is well illustrated with photographs and illustrations in from one to three colors. Simple maps of the city and Bay are included in the books.

The books are written with a vocabulary and concepts geared to the third grade. The type face was carefully selected for easy reading, and the size is appropriate for the eight-year-old child. Sentence and paragraph length meet the standards set by experienced publishers of primary books.

The colorful illustrations and photography are in keeping with the standards set for the text material.

The films, study prints, and sound transcriptions are closely correlated with the booklets. For instance, the second booklet, *In and Out of San Francisco,* which deals with transportation, opens with a passenger liner coming into San Francisco and the copy follows its movements to the dock. A film strip, *The Port of San Francisco,* follows the same route with a sequence of twelve photographs. The sound transcription includes the surf, tug boats, the whistle of the liner, fog horns, and similar sounds along the Bay.

Two elementary school supervisors prepared a teacher's loose-leaf guide to accompany the booklets, treating vocabulary, social studies concepts, and so forth. New sheets are supplied with each new booklet.

A group of third-grade teachers, working with one of the elementary school supervisors, will revise the teachers' guides this second semester, following their experiences with the materials. The new guide will then be printed.

The local institute program of last December included a demonstration by a third-grade class from the Winfield Scott School. The demonstration emphasized the use and correlation of the varied materials — films, books, study prints, and transcription.

Due to popular demand, the booklets are being made available at cost to other cities in the Bay Area. They may be ordered from the San Francisco Unified School District.

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Second Annual Conference on Educational Research To Be Held at Mills College

The 1950 Annual Conference on Educational Research, sponsored by the California State Advisory Council, will be held at Mills College, Oakland, California, on November 10 and 11. The First Annual Conference was held last October at Santa Barbara College and was well attended by research personnel. The Program Committee for the 1950 Conference will be: Dr. D. Welty Lefever, University of Southern California, chairman; Dr. Georgia S. Adams, Research Coordinator, Pasadena City Schools; Dr. David G. Ryans, University of California at Los Angeles; Dr. Harry W. Smallenburg, Director of the Division of Research and Guidance, Los Angeles County Schools; and Dr. Henry W. Magnuson, State Department of Education. Detailed information concerning the Conference will appear in a later issue of the *California Journal of Educational Research,* as well as in *California Schools.*

California School Administrative Codes—Their Use and Format

DAVID M. FLORELL
Lompoc Union Elementary and Union High School Districts
Lompoc, California

LITTLE attention has been given to the administrative code as an instrument of educational administration. Educational administration textbooks and literature make scant reference to it. This condition is reflected in the general neglect among school administrators to provide themselves with such codes adopted by their boards of education.

In practice an administrative code is a document which contains the general policies and rules and regulations of the governing board of education. It deals with the organization, administration and operation of the school system. Its purpose is to define and designate the structural organization of the school; duties, responsibilities and lines of authority or advisory capacity of personnel; rules and regulations regarding pupils and property; and the general policies to be followed by the staff in making decisions.

An administrative code helps immeasurably in facilitating the work of the school board, the administrators, the teachers, and other personnel. It lends a degree of desirable stability to the school system, for decisions based on policy are likely to be consistent. It should be designed to fit the needs of the school system in which it is to be used. Further, it must be developed within the framework of legal statutes and rules and regulations of the state education agency. Not least — the provisions of an administrative code should be based upon sound principles and practices of educational administration.

In the spring of 1947 the writer initiated a study of administrative codes in the public schools of California. Two purposes of the study were: (1) to determine the extent to which administrative codes were being used in the public schools and (2) to discover their format.

This study is confined to the public schools of California. Schools are grouped according to the size of the city in which they are located. The

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Dr. David M. Florell has been superintendent of the Lompoc Union Elementary School and Lompoc Union High School Districts since 1947. He had formerly taught in Minnesota, and served as district superintendent of the Owens Valley Unified Schools at Independence, California. Dr. Florell received his bachelor's and master's degrees from the University of Minnesota. His doctorate was awarded by the University of California at Los Angeles.

following groups are used: Group I — cities over 100,000 population; Group II — 30,000 to 100,000; Group III — 10,000 to 30,000; Group IV — 5,000 to 10,000; Group V — 2,500 to 5,000; and Group VI — below 2,500. In selecting schools to be included in Group VI, two communities were arbitrarily chosen from each county so far as possible. All elementary, secondary, unified, and city school systems located in California cities of over 2,500 population are included in the study.

The Use of Codes

The results of this study have been tabulated by type of school district as shown in Table I. The one elementary school district in a city of 30,000 to 100,000 did have an administrative code. However, it may be noted from Table I that less than one half (42.8 per cent) of the elementary school districts reporting in cities of 10,000 to 30,000 had developed and adopted this administrative document. The percentage of these districts having such codes decreases with the size of the city in which the school is located.

TABLE I

NUMBER AND PER CENT OF PUBLIC SCHOOL SYSTEMS IN VARIOUS SIZED CITIES OF CALIFORNIA HAVING ADMINISTRATIVE CODES

			Districts Having Codes							
			Elementary		Secondary		Unified or City		Total	
Cities	Total Districts in Study	Total Districts Reporting	No.	%	No.	%	No.	%	No.	%
Group I Over 100,000	6	6	--	----	--	----	6	100.0	6	100.0
Group II 30,000 - 100,000	16	15	1	100.0	1	100.0	10	77.0	12	80.0
Group III 10,000 - 30,000	51	46	9	42.8	9	52.9	7	87.5	25	54.3
Group IV 5,000 - 10,000	72	57	11	36.6	9	40.9	2	40.0	22	38.5
Group V 2,500 - 5,000	90	72	5	14.7	4	13.3	4	50.0	13	18.0
Group VI Below 2,500	176	155	3	4.3	13	15.6	1	33.3	17	10.9

A study of the figures in Table I reveals that conditions in the secondary school districts are somewhat similar to those found in the elementary school districts. The one secondary school district in a city of 30,000 to 100,000 did have an administrative code. Only 52.9 per cent of the secondary school districts reporting from cities of 10,000 to 30,000 had a code of this kind. This is approximately 10 per cent higher than for elementary school districts in similar sized cities. The percentage of secondary school districts having this code decreased almost in relation to the size of the city in which the district is located.

All schools in city and unified school districts located in cities of over 100,000 reported having adopted administrative codes. In contrast to this, only 33.3 per cent of unified schools in communities below 2,500 population reported having done so. However, this percentage is nearly eight times greater than for elementary schools and approximately twice that for secondary schools located in similar sized communities. Unified school systems are usually larger than either elementary or secondary schools in similar sized communities — a factor which may explain in part why generally a larger percentage of unified schools have adopted administrative codes, regardless of the city group in which comparisons are made.

The composite picture of the use of administrative codes in all the public schools of California is also shown in Table I. The percentage of school systems having administrative codes varies directly with the size of the cities in which they are located. Only in cities of over 10,000 population do more than one half of the school systems have administrative codes. All school systems in cities of 100,000 population or more have this document. The percentage declines to 10.9 for schools in communities below 2,500 population.

The results of this study showing the use of administrative codes in the public schools of California are not encouraging. A little encouragement may be had from reports of some school administrators that an administrative code was in the process of being developed. The lack of such an instrument of administration does not in itself mean that, in school systems where this condition exists, the schools are poorly managed or governed. In a school system where no code exists the school board may follow an unwritten policy based upon earlier decisions.

Format of Codes

During the course of this study a number of codes were collected from various sized school systems. However, it was not possible to secure codes from all schools. The administrative codes examined and studied were largely from schools in cities of over 5,000 population. A total of 31 codes were included in this study.

A perusal of the documents reveals a wide variety of characteristics. A school administrator or school board interested in developing and adopting an administrative code must answer such questions as these: *What size shall it be? Shall it be bound or unbound? Shall it be printed, typed, or mimeographed? Shall it have a title page, foreword, table of contents, index and adoption date? What shall be its length?* Not all of these are equally important, but in determining the format perhaps most of them should be considered along with other characteristics. The tabular analysis below shows the frequency of certain characteristics of codes used in various sized California school systems.

One striking fact from Table II is that 19 of the 31 codes examined, or 61.2 per cent, were 8½″ x 11″ in size. Odd sizes were most frequently smaller — the smallest being 3⅞″ x 6″. There were no codes larger than 8½″ x 11″.

Whether an administrative code is to be bound or unbound is also a practical matter which the administrator or school board must determine. Approximately one half (48.3 per cent) of all codes are bound; the remainder are unbound.

For the sake of usability, administrative codes should be bound. The greatest flexibility is secured through the use of a loose leaf binder which facilitates modifications and additions.

To what extent are the codes printed, typed, or mimeographed? Table II reveals that 21, or 67.7 per cent of the codes examined were typed or mimeographed. They were most frequently the latter. Eighty per cent of all printed codes came from schools located in cities of over 10,000 population. Although the most common size of codes is 8½″ x 11″, none of this size was printed. All printed codes were bound, as might be expected.

TABLE II

FORMAT OF THIRTY-ONE SCHOOL ADMINISTRATIVE CODES

	POPULATION OF CITY							
Characteristics	Group I Over 100,000	Group II 30,000-100,000	Group III 10,000-30,000	Group IV 5,000-10,000	Group V 2,500-5,000	Group VI Below 2,500	Total All Codes	Per Cent
No. of Codes	4	7	6	4	6	4	31	100.0
Size, 6″ x 9″	3	0	1	0	1	0	5	16.1
Size, 8½″ x 11″	1	4	4	4	2	4	19	61.2
Other Sizes	0	3	1	0	3	0	7	22.5
Bound	3	6	2	0	4	0	15	48.3
Unbound	1	1	4	4	2	4	16	51.6
Printed	3	3	2	0	2	0	10	32.2
Typed or Mimeo.	1	4	4	4	4	4	21	67.7
Title Page	4	5	5	0	3	1	18	58.0
Foreword	3	3	3	0	2	1	12	38.7
Table of Contents	4	5	5	1	3	1	19	61.2
Index	3	1	2	0	1	0	7	22.5
Adoption Date	4	6	6	3	4	1	24	77.4
Page Range — Single Side	39	8-89	25-129	3-30	6-52	2-25	2-129	
Page Range — Two Sides	26-69	16-39	19-53	0	20-23	0	16-69	

Table II reveals that 58.0 per cent of the 31 codes examined possessed a title page. Its inclusion adds to the completeness of the document by frequently giving information concerning membership on the board, location of administrative offices and other pertinent data.

It may be noted further that 38.7 per cent of the codes included a foreword or introductory statement. Such a foreword most frequently states the purpose of the code, its development, its use to school patrons and school personnel, and acknowledgements of assistance in its preparation.

A table of contents was found in 61.2 per cent of the codes studied. This is an important part of a document and should not be omitted.

An index was found in only 22.5 per cent of the codes. While perhaps not as important as a table of contents, it can be of great assistance in finding reference to an item in a more voluminous document.

The date of adoption was stated in 77.4 per cent of the administrative codes analyzed. These dates ranged from 1939 to 1946. For purposes of record, the adoption date and dates of revisions should be included.

It will be noted from Table II that the codes vary a great deal in length. Typed or mimeographed codes reveal a greater range in length than do printed codes, the former from 2 to 129 pages and the latter from 16 to 69 pages.

The findings of this study reveal that no one size of code is common to all schools. Although 8½″ x 11″ is most common, printed copies were always smaller. For printed codes size 6″ x 9″ was most frequently found.

No definite trend in length of codes is detectable. The greatest range in length appears in typed or mimeographed codes. Length appears to depend upon a number of factors, including size of the school organization, scope of matters included, and the detail in stating school policies and rules and regulations of the board.

(A second article by Dr. Florell, on "California School Administrative Codes — Their Contents," will appear in the May issue.)

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The most important single factor affecting teacher morale, according to 1,600 school people who were recently consulted, was strong administrative support to the teacher in discipline problems. Other items considered important were: belief in and enjoyment of teaching, a just and adequate salary plan, courtesy and respect from students, and a pension plan. Ranking low in importance were such items as: community financial and moral support of the educational program, equitable teacher load, long-range planning by the board of education, good interfaculty relations, and reasonable social freedom for the teacher. The complete study by Leipold and Yarbrough is reported in the December, 1949, *School Board Journal.*

Teacher Behavior Most Disliked by Students

H. B. LONG and LLOYD FARLEY
Gilroy Public Schools

THERE have been previous studies of pupil attitude and response to teacher performance, but a novel combination of techniques applied to classrooms in the schools of Gilroy, California, has discovered new data for teachers and teacher education schools to examine. The novelty and originality of the study lay in the extensive use of the sociodrama technique, which was validated by records of informal remarks, nondirective guidance, and interviews. It is believed that our practice of recruiting and of training teachers largely in terms of adult criteria is challenged by an analysis of the likes, dislikes, and opinions of pupils relative to the behavior of the teachers they have or know. Given due weight in evaluating teaching effectiveness, pupil opinions, even though from immature minds, are consumer judgments and are also effective public relations reports to the community on the school program.

The purpose of the study was to determine the teacher behavior traits most disliked by the pupils in all public school grades from kindergarten through high school. Although favorable comments greatly outweighed negative comments, only the latter were recorded. Pupil responses were spontaneous, informal, and unsolicited; pupils were not aware that their opinions were being recorded. The opinions were obtained in a natural, normal social setting.

How the Sociodrama was Used

The experiment in sociodrama was carried on in the regular classroom in grades seven through twelve. In the sixth grade and below it was found necessary to take the actors to another classroom or to the teachers' study

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Dr. Harold Boyd Long and Dr. Lloyd Edward Farley, district superintendent and high school principal, respectively, at Gilroy, California, exemplify the ideal working relationship of professional colleagues. They collaborated on this joint doctoral study which was completed at Stanford University in June, 1949. Dr. Long, prior to his present position, has served as district superintendent at Hayward Union High School, principal at Manteca Union High School and at Princeton Joint Union High School. He taught also in Kansas and Utah. Dr. Farley began teaching in Nebraska and came to California following a long period of service in the U. S. Army during World War II. His war service included duty as director of teacher training for Korea, and district education officer at Okinawa. Dr. Farley was principal of the Esparto (California) Union High School before he assumed his present position at Gilroy in 1948.

room. This change was made necessary by the fact that the audience was so anxious to act that nothing but confusion took place. Six or seven pupils in a room by themselves, however, were very natural in acting out their sociodrama plot.

The teacher of the class would not know that the observers were coming until they arrived. The observers were introduced to the teacher and the pupils by the principal of the school. He told them that the observers would have charge of the class for a short time, and when they finished the teacher would return to the room.

After the principal and teacher had left the room one of the observers would give a short talk on how classes were taught in their parents' day. He would discuss some of the methods used, and why some were better than others. He would explain that in the past few years a new training technique known as sociodrama had been used. He further explained sociodrama and asked if they would like to try the new technique in their class. They showed an eagerness to do so.

The observer explained that each pupil would participate in a sociodrama as player or audience and all would have an opportunity to play a part. He next gave a general idea of the plot to be followed and stressed the necessity of each actor playing his part as he thought it should be played. Often the students helped to select the characters for the sociodrama thus outlined. He emphasized the fact that there would be no script, no rehearsals, and an imperfect stage setting. Everyone would have to imagine certain things, but his imaginings should be based upon real life situations. The actors were instructed to continue with the sociodrama until they had reached a successful solution to their problems, then terminate the situation.

The basic sociodrama plot selected for all grades was briefly this: On a Friday after school the teacher telephoned parents to inform them of something the student was not doing properly. The parents had visitors. The student with two or three friends arrived home shortly after the telephone conversation and asked permission to go to a party, athletic event, or movie, with a request for money or the family car. The basic plot was varied appropriately for the various age levels in the total group of 1678 pupils for whom responses were recorded.

From this point on the sociodrama took many interesting forms. It never failed to progress, and generally proceeded another five to thirty minutes. In every instance the teacher and his teaching was the main topic for discussion. The observers were free to record all pertinent data. Fifteen hundred and thirty-nine comments on negative behavior of teachers were recorded, which were later classified into twelve categories. Most of the comments were very interesting and picturesque.

Are Sociodrama Results Valid?

One check on the validity of the sociodrama technique is furnished by comparison with the results from more traditional methods of obtaining opinions. Informal remarks about their teachers by 120 high school students were recorded. Also, teacher behavior disliked by 439 high school students, voiced during nondirective counseling conferences, was noted. These 439 high school students were then given the opportunity to take part in a series of sociodramas concerning learning and teaching. Opinions of negative teacher behavior voiced by the participants in these sociodramas were also recorded. The ninety seniors in the high school were then interviewed by a trained interviewer about the behavior they disliked of their teachers.

All methods used tended to give the same results. Remarks made by a student during a sociodrama situation were olmost identical with the remarks made to friends at a football game, to his counselor, or to the interviewer. The sociodrama situations were then used from grade eight down through the kindergarten.

Teacher Behavior that Has Little Effect upon Pupils

Writers have led us to believe that personality, physical appearance, personal appearance, and voice are important qualifications for teachers. This study shows that students place little emphasis on these characteristics. In all of the comments, not a single one reflected upon the physical appearance of the teacher or non-certificated employee. His physical appearance had nothing to do with what the students thought of him, as far as could be ascertained. These results might be due to the fact that all of the teachers had been well screened. It possibly means that teacher training institutions and administrators are extremely conscious of these characteristics and are doing a good job in placing teachers who have acceptable physical and personal appearance, pleasing personalities, and good voices. The fact still remains that students are considerably more critical of other negative characteristics of teachers.

Teacher Behavior that Students Dislike most

A tabular summary of teacher behavior disliked by the 1678 pupils in this study appears in Table I. The students disliked most that teacher behavior which may be called "poor teaching technique, including organization, explanation, and class control." Four hundred thirty-eight comments or over one fourth of those made were categorized under this heading.

The fact that "poor teaching technique" appears in first place in the comments about undesirable teacher behavior casts a reflection beyond the teachers to whom these students referred. It reflects upon the administration of schools, teacher training institutions, and the society which has made teaching so much less attractive than other professions.

TABLE I

TEACHER BEHAVIOR DISLIKED BY 1678 PUPILS, GRADES KINDERGARTEN THROUGH SENIOR HIGH SCHOOL—CLASSIFIED BY SEX AND ELEMENTARY AND SECONDARY SCHOOL

Behavior Disliked	Elementary Boys Frequency of Mention	Elementary Boys Rank	Elementary Girls Frequency of Mention	Elementary Girls Rank	High School Boys Frequency of Mention	High School Boys Rank	High School Girls Frequency of Mention	High School Girls Rank
1. Poor teaching technics, including organization, explanations, and class control	87	3	106	3	137	1	108	1
2. Partiality—favoritism	38	6	30	6	11	7	16	5
3. Not fair, unjust	41	4	59	4	31	3	24	3
4. Failure to arouse pupil interest	40	5	29	7	28	4	48	2
5. Creates feeling of insecurity and/or fear	92	2	115	1	19	5	8	7
6. Corporal punishment	145	1	110	2	0	11.5	0	11.5
7. Lack of rapport	13	9	4	9	10	8	18	4
8. Lack of courtesy	18	7	20	8	7	9	5	8
9. Disposition	16	8	32	5	17	6	12	6
10. Lack of knowledge of subject matter	1	11	0	12	33	2	1	10
11. Poor personal appearance	2	10	1	10.5	0	11.5	0	11.5
12. Lack of cooperation	0	12	1	10.5	4	10	2	9

The following conclusions from the data in Table I appear to be valid:

1. There is still a significant dependence upon corporal punishment, fear, and insecurity in teacher classroom management. This must be pointed out in contrast to our profession of democracy and our provision for individual development and opportunity.
2. To a significant degree the teacher, or the teacher in the classroom situation,

fails to arouse pupil interest. Perhaps this problem would be more justly defined as "the teacher *and* the classroom situation"; perhaps just "the classroom situation." Nevertheless, the teacher, as the active human factor, must accept responsibility for motivation.

3. Too many teachers are unfair, unjust, and partial. This behavior destroys a pupil's faith not only in schooling but in society itself. To the student the teacher represents the leader for *all* the class, the living example of democracy. If the teacher fails to live up to this expectation, then many children are disillusioned in school.

Negative Teacher Behavior Follows a Definite Pattern

This study shows that the negative behavior of the various teachers follows a fairly repetitive pattern. A very definite pattern appears for each individual teacher. Most of the teachers were well liked by their pupils: however, all teachers had one or two types of behavior that were disliked by significant proportions of the students in their classes.

It is interesting to note that boys and girls tended to agree about the behavior they disliked in their teachers. Also, students tended to be in close agreement regardless of their school achievement, whether average, above, or below average. However, below average students made fewer comments about their teachers than did average or above average students.

Likewise, students of all ages and grades — kindegrarten through the senior high school — were in general agreement regarding the negative behavior of their teachers. It seems to make little difference as to the age, grade, sex, or achievement of the students — all tend to dislike the same teacher behavior, with few exceptions.

There was no dislike of corporal punishment in the high school, since corporal punishment is not used in these grades. Elementary pupils, of all grades and both sexes, disliked corporal punishment extremely.

Another variation was the fact that high school students put more stress on good teaching techniques than do elementary pupils, although even kindergarten pupils mentioned poor teaching techniques. Boys were a little more critical of poor teaching techniques than were the girls.

Significance for Policy

Our present day curriculum is teaching pupils to be critical of events and persons around them. The present study indicates that pupils are fair and just rather than petty or juvenile. Of the entire body of criticism, 95 per cent was directed toward the teacher who was not living up to the teacher ideal, either because he was not democratic or was not a leader. Today pupils want a teacher who is a democratic leader. Studies such as this can help administrators and teacher training institutions locate and train these desired teachers.

Suggested Research Problems

Relating to Teaahing Efficiency and Success

(Proposed by Dr. David G. Ryans, University of California at Los Angeles)

•

1. What is the relation between the amount of education and teaching success?
2. How is the amount and kind of supervision related to teaching effectiveness?
3. Does teaching effectiveness vary with administrative organization?
4. What is the nature of the relationship between length and kinds of experience and teaching effectiveness?
5. How does the teaching effectiveness of married and unmarried women compare?
6. How reliable and how valid are the various procedures employed in rating teachers?
7. What weights should be assigned to the various factors in selecting teachers for different types of school systems and different school situations?
8. To what extent are professional education courses effective in contributing to teaching success?
9. What are the criteria of good teaching?
10. What is the relationship of the possession of measurable intellectual qualities to teaching success?
11. What is the relationship of the possession of measurable personal qualities to teaching success?
12. What is the relationship of subject matter mastery to teaching success?

Book Reviews

Growing Points in Educational Research

1949 Official Report, American Educational Research Association, National Educational Association, Washington, D.C., 340 pp.

This publication, the eighth annual report of the meetings of the American Educational Research Association, includes the research reports which were presented at the 1949 meetings of the Association held at San Francisco, St. Louis, and Philadelphia. The fifty-four articles cover varied subjects which, for convenience, are classified under the following headings: (1) general. (2) elementary education, (3) administrative, (4) adult education, (5) curriculum, (6) research procedures, (7) social learning, (8) teacher education, (9) educational problems in large school systems, (10) current research as illustrated by selected studies, and (11) child development. The last three topics were used as themes of symposium discussions at the Philadelphia conference.

Many of the 54 articles have practical application and should be of special interset to teachers and school administrators as well as to research personnel. Supervisors will find stimulating reports on the teaching of various elementary school subjects. *Growing Points in Educational Research* presents a galaxy of research articles to appeal to all tastes.

Guide to Research in Educational History

By William W. Brickman

New York: New York University Bookstore, 1949, 220 pp.

Students of the history of education should welcome this effective *Guide.* An excellent classified and annotated bibliography (42 titles) is functionally incorporated in chapters dealing with "The Preliminary Search for Information," "The Search for Source Materials," and "Aids in the Writing of History." Well-chosen specific examples make the discussion of "Applying the Historical Method of Research to Education" particularly useable. The treatments of "Special problems of historical research in education" (dating, sources of an educational idea or book, determination of primacy, institutional origins, establishment of influence, determination of authorship, etc.), "Interpretation," and "Synthesis" (selection of data, chronological sequence, topical arrangement, causality, historical trends, etc.) are noteworthy. Chapters on "Note-Taking and Documentation," "The Technique of Presentation," and "Evaluation of the Research Report in Educational History" also are included.

Occupational Outlook Handbook

Bulletin No. 940, Bureau of Labor Statistics, United States Department of Labor, Washington 25, D.C., 453 pp.

Prepared in cooperation with the Veterans' Administration, this handbook contains essential employment information on major occupations. It was prepared for use in guidance and is designed for schools, colleges, Veterans' Administration regional offices and guidance centers, employment service offices, community organizations, and other agenices engaged in the vocational guidance of young people, veterans, and workers.

For each profession and occupation covered, the following items of information are given: (1) nature or description of the work; (2) training and qualification requirements; (3) occupational outlook; (4) earnings; and (5) where to get more information. Preliminary chapters deal with the use of the Handbook, economic and occupational trends, population and labor forces, and industrial and occupational trends.

The Handbook should be invaluable to school guidance personnel. It is undoubtedly the most complete and authoritative source of information on occupational opportunities. It is priced at $1.75.

"Teacher Personnel"—*Review of Educational Research*

Vol. XIX, No. 3, Washington, D.C., June, 1949, 101 pp.

This issue of the *Review of Educational Research* presents a survey and compilation of studies of teacher personnel for the three-year period, June, 1946 to June, 1949. The issue is jam-packed with significant summaries of hundreds of studies related to teacher personnel. The studies are classified under the following headings: (1) supply and demand in teaching; (2) measurement and prediction of teaching success; (3) recruitment, institutional selection, and guidance of teachers; (4) preservice preparation of teachers; (5) local selection, placement, and administrative relations; (6) inservice education of teachers; (7) preparation of college teachers; (8) teaching load and assignments; (9) teachers' salaries, pensions, and retirement pay; (10) teacher certification; (11) legal status of teachers; (12) teachers' ossociations, organizations, and unions; and (13 welfare of the individual teacher.

This issue of the *Review* contains concise summaries of teacher personnel studies and represents a distinct contribution to the literature needed by research people. Of special interest will be the extensive bibliographies to be found at the end of each chapter.

Early School Leavers—A Major Educational Problem

By Harold J. Dillon

National Child Labor Committee, New York 16, N. Y., Publication 401, October, 1949, 94 pp.

This monograph, published by the National Child Labor Committee, reports on a study of 1,360 early school leavers in five communities of the Midwest. Its purpose was to discover why so many boys and girls leave school for employment before they complete their high school course. The study sought to answer the following questions:

1. As a result of careful study of the school records, information from teachers and from the individuals themselves, do recognizable trouble signs emerge that will be helpful in detecting vulnerability to early school leaving?
2. How may cumulative records be more effectively used in detecting maladjustment or failure patterns among the potential school leavers?
3. Among early school leavers, is there a significant number who could profit from further education?
4. What counseling services may be needed for effective results in holding youth in school?
5. At what grade level should counseling services begin if they are to be more effective in keeping youth in school?
6. Is an adequate system of clearance provided for sharing the information about a student obtained by teachers, counselors, attendance workers, work-permit issuing officers, and the school nurse?
7. Are explanations for dropping out of school, given by the youth and appearing on school records, the real *reasons* or merely *excuses* for leaving school?
8. Does changing from one environment to another (transfer from one school or community to another) influence decisions to leave school?
9. What process does youth go through in severing his connection with the school? Is counseling offered to him? Are his parents interviewed? Is his decision to leave school known by school personnel at a time when effective help may be given to him?
10. What curriculum and/or instructional reorganization may be needed to provide the types of experience adapted to interests and abilities of individual students?
11. In what ways may more adequate occupational information become effective?

The data for the study were secured from three sources: school records, teachers, and personal interviews with each of the 1,360 students. The author concludes that there are seven symptoms of vulnerability which can be used to predict early school leaving. A number of recommendations are offered, most of which will be familiar to school counselors. The monograph is well-written and easy to read.

* * * * *

Research News and Views

The California Association of School Administrators announces the publication of two studies which were prepared under its sponsorship: (1) *Lay Advisory Committees to Boards of Education in the United States*, and (2) *The People and the Schools of California*. The former, a 26-page publication, was prepared by Dr. J. H. Hull, Superintendent of Torrance Public Schools, and is based on a research study of the "Lay Advisory Committee" movement in America. The report describes how such lay committees are organized, their function and purpose, how they work, and results obtained. The latter publication, the First Yearbook of the Association, includes a report of a year's study of best practice in 250 public school systems in dealing with problems of lay participation, lay understanding, and lay support for the program of public education in California. This study of 125 pages was directed and edited by Dr. Theodore L. Reller, Professor of Education, University of California at Berkeley. The publications may be ordered from the California Association of School Administrators, 35 North Raymond Avenue, Pasadena 1, California. Price of the Yearbook is $1.75, and the smaller publication, 50¢. Quantity prices are furnished on request.

* * * * *

More than 35 per cent of the total cost of public elementary and secondary schools is now being paid by the states, according to the NEA Research Department. The per cent has risen steadily from an average of 17.2 in 1929-30. The same report (*State Legislation Affecting School Revenues, 1944-1948*) notes other trends affecting public education: (1) teachers' salaries, despite increases, still compared unfavorably in 1948 with those which were available in other occupations requiring similar qualifications; (2) a shortage of qualified teachers which developed during the war years is only slightly reduced; (3) increased capital outlays will be needed over a period of years before deficiencies in the school plant, resulting from wartime neglect, can be corrected; (4) increased enrollments in the elementary schools, which will also reach the high schools during the next decade, will necessitate further expansion of instructional staffs and school building facilities. These conditions lead to the logical conclusion that the states will have to provide more liberal aid than ever before if children are to be given a satisfactory standard of education, contends the NEA Research Department.

A program of general education for the junior colleges of California will be developed within the next two years by the California State Junior College Association and the School of Education, University of California at Los Angeles. This project has been made possible by the securing of a grant of $30,000 from the Carnegie Foundation. The project embraces workshops at the University of California, Los Angeles, during the summer sessions of 1950 and 1951, a number of regional conferences to be held on the campuses of junior colleges located in all sections of the State, state meetings of junior college leaders, and participation of faculty groups from all junior colleges of the State. The project is expected to culminate in the development of a charter or statement of fundamental ideas and philosophy which will serve as the basis for the organization and development of general education, including curriculum, guidance, student activities, and all phases of the educational program.

* * * * *

State aid varies from 4 per cent of school costs in Nebraska to 89 per cent in Delaware. It is above 50 per cent in 15 states, and below 20 per cent in 11 states. No state was spending as high a per cent of income in 1948 as in 1940.

* * * * *

Sweeping changes in important taxes were made by state legislatures in 1949, according to the United States Chamber of Commerce, and all the changes were upward. In addition, six states tapped new sources of revenue through new major taxes. A summary of the tax changes effected by the 1949 legislatures, as reported by the U. S. Chamber, shows:

	Number of States	
Source of Taxes	Increased	New
Gasoline	15	0
Cigarettes	9	2
Liquor	10	1
Personal Income	8	0
Corporate Income	6	0
Sales, Gross Income, and/or Use	4	3

* * * * *

The NEA Educational Research Service, in its annual bibliography of questionnaire studies (Bibliography No. 20, Circular No. 10, November 1949), reports that the number of questionnaire studies for which they have information has dropped for the first time in five years. The number of such studies reported to the Educational Research Service rose from 225 in 1944-45 to 522 in 1947-48. For the past year, 1948-49, the number dropped to only 450 questionnaires. The bulletin classifies 112 of the studies which were submitted to the NEA under appropriate subject-headings, and presents a brief annotation of each. Thirty-three of the references pertained to salary and salary schedule studies.

All but two of the 20 largest city school districts in the United States have schedules of the single-salary type in 1949-50, according to the NEA Research Division. This represents a recent development, as in 1939-40 only four had single-salary schedules. In 1944-45, the number using single-salary schedules rose to 7, while at present 18 cities now use them.

* * * * *

Many California county, city, and individual schools have indicated interest in participating in the California Cooperative Study of School Drop-Outs and Graduates. This project is being organized by the State Department of Education as the result of suggestions from committees representing various state professional groups and will run through the 1950-51 school year. Participation is open to all schools in the state which are interested in carrying on a study of young people who graduate from or drop out of school.

The purpose of the study is to secure more adequate information than is now available concerning such prbolems as: How many young people drop out of California schools before graduating from high school or junior college? What are the reasons why young people leave school before graduation? How can potential drop-outs be recognized before they actually leave school? How much unemployment exists among recent drop-outs and graduates? What occupations do young people enter upon leaving school? How do former students think the schools could have served them more effectively?

Projects already underway include such studies as the following: One county office, in cooperation with eight high schools, is making an intensive interview-type study of the first 100 tenth grade students dropping out of school this year. Several junior colleges and high schools are making studies of drop-outs through terminal interviews with all students leaving school. One state professional group is organizing an extensive study of continuation school students in an effort to discover why they left the regular program. A large city system recently completed a pilot study of a sampling of 2,000 high school graduates in order to set up procedures for carrying on a regular follow-up study program in all secondary schools. Another large city system is working out arrangements with a state college under which graduate students will carry on follow-up studies as thesis projects under the supervision of the city school research department.

A mimeographed bulletin giving full information concerning the Cooperative Study has recently been distributed to all county and city superintendents and to all secondary schools within the state. Schools interested in participating are invited to contact the State Department of Education, Bureau of Occupational Information and Guidance, Sacramento 14, California.

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THE EDITORS SAY:

Research Has Problems, Too!

THE FIRST two issues of this new publication carried a feature article. The present issue has several features. Foremost is the annual classified bibliography of California theses and dissertations completed during 1949. This feature will appear annually in the May issue of the Journal.

We believe that the bibliography will serve a useful purpose in addition to that of serving as a record of 1949 graduate research in Education. Previous bibliographies (two others were issued in mimeograph form by the CTA Research Department) have proven to be of value to graduate students and their advisors in surveying the field of possible research problems.

Since the bibliography of theses and dissertations constitutes the major portion of this issue of the Journal, we deemed it appropriate to include the articles by Dr. Truman L. Kelley and Dr. George H. Geyer. Neither of these men needs an introduction to the readers of this magazine. Their articles deserve thoughtful study and planned action. Both articles contain forthright statements of concern to research people. Dr. Geyer's article deserves more than a little attention by the education leaders of California. In fact, his comments at this time will serve as excellent background for appreciation of the recent report of the Chief of the Bureau of School District Reorganization, California State Department of Education. This report reveals that 79 per cent of redistricting elections held in California during the fall of 1949 failed of passage. Only four of nineteen proposals carried. The report states "in areas where public hearings were attended by speakers capable of giving the correct facts regarding the reorganization proposals, a more favorable vote was cast."

Could the aid of research in education be more clearly challenged? Dr. Geyer has put his finger on an area in great need of intensive and immediate study. Graduate students, take note!

Because of the inclusion of the bibliography of theses and dissertations, two usual features of the Journal had to be omitted from this issue: *Research News and Views* and *Book Reviews*. They will be resumed in September.

Before the summer respite, may we suggest that you take the time to write "that" article on your research problems. It may be worthy of publication and we'd like to see it.

A NEGLECTED AREA OF NEEDED RESEARCH:
School District Reorganization

George H. Geyer
San Diego Unified School District

Introduction

Between 1919 and 1937 four independent statewide surveys indicted California's school district system. The indictments by the first that " . . . [California's school] district system is expensive, inefficient, short-sighted and unprogressive . . . " (1) were supported by the succeeding three. The survey of 1937 furnished a virtual summary of the previous studies when it reported, "California has been content to 'muddle along' with a cumbersome, antiquated organization because, plainly speaking, it has been able to afford to do so." (2)

The vulnerability of California's district system had become so widely recognized by 1945 that the Reconstruction and Reemployment Commission reported simply, "Everyone is familiar with the importance of achieving a more satisfactory school district organization in the State of California." (3)

There remained then only the question of what methods to use in reorganization procedure. The Reconstruction and Reemployment Commission recommended the establishment of a statewide program of optional reorganization. This recommendation called for three provisions of equal importance based upon the results of national experience:

1. A Statewide organization to promote a study of the problem.
2. Provision for reorganization by majority vote in the area under consideration.
3. Financial incentives to areas that reorganize. . . .

State Commission on School Districts Established

The 1945 California Legislature, in recognition of the need, but lacking a united support from the education profession, established a program that

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Dr. George H. Geyer is well qualified to discuss the problems and needs of school district reorganization in California. He served as State survey director of the California Commission on School Districts from 1946 to 1949. Prior to that time, he had served for three years in the United States Army. From 1939 to 1943, Dr. Geyer was a director at Glendale Junior College. His present position is assistant superintendent of the San Diego Unified School District.

had but the first of the three recommended provisions.[1] The State Commission on School Districts was established and was directed to carry on a study of the state through local survey committees and regional commissions. It was directed further to consider, for approval or disapproval, recommendations by local committees for reorganization and to direct the calling of local reorganization elections.

During the three years of its operation, the Commission directed surveys in all counties in California.[2] More than 1,200 regional commission, local survey committee and trustee members participated in this statewide study. Seventy-seven local committee recommendations for reorganization were approved by the Commission. Of these, only fifteen were accepted by local electors.

Major Findings of the Commission

The experience of the Commission and the reports of local committees substantiates the need for district reorganization as submitted by the studies prior to 1940. The Commission found that:

1. California has more than two and one quarter thousand school districts. Almost half of them support only one- and two-room schools.
2. California's school district organization system is expensive to the State and to local communities. It contributes to state and local inefficiency in the assignment of professional personnel, in the building of school buildings and in any attempt to provide equal educational opportunity for children. The district organization pattern contributes to confusion in administration and control. It tends to increase authority on the state and county levels and it stands as a threat to local control of education.
3. Present methods of distributing State school funds for district aid, as well as for the supervision of instruction, tend to over-subsidize and over-encourage the life span of hundreds of small, weak and inefficient school districts and to retard local efforts to create strong, efficient ones. (4)

Obstacles to School District Reorganization

Chief among the obstacles which prevent or retard acceptance of good school district reorganization by the affected voters are certain provisions of the *Education Code* relating to the apportionment of the State School Fund.

Upon the basis of this evidence, the State Reconstruction and Reemployment Commission reported in 1945 as follows:

> " . . . care should be taken that State aid is not so employed as to hold back district consolidation."
>
> "Experimental aid . . . supplemented by further study, should lead to a more complete policy of transportation aid as a fiscal incentive to better districting."
>
> "California ought to accompany its planning for and encouragement of more

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[1] The second, vote by majority in the area, was provided in part by the Legislature in 1947, but the third, financial incentive to reorganization, has yet to be provided.

[2] The County and City of San Francisco is the single exception.

> satisfactory district organization with reasonable capital outlay aid."
>
> "The County Office is unquestionably an important factor in improving district organization. Its leadership can go far in attaining better district structure. Therefore, . . . more adequate financing of [County Office] services . . . will be in some measure at least offering a real fiscal encouragement towards better districting."
>
> "Positive encouragement to organize larger administrative units should be provided in the form of financial inducements (of two types):
>
> (a) to encourage the organization of more satisfactory administrative units, and
>
> (b) to encourage the formation of more satisfactory attendance areas within the reorganized administrative units."(3)

In 1949, the Council of State Governments reported that:

> "Reorganized districts [should] receive more favorable treatment in distribution of state funds . . . Financial penalty [should be imposed] on small schools or small districts if they continue to operate . . . State aid for school buildings and transportation [should] encourage reorganization."(6)

To date, California fiscal legislation not only does not contain provisions to stimulate good district reorganization, but actually places a financial premium upon retaining the existing inefficient district organization.

Non-Fiscal Obstacles to Reorganization

The following questions with accompanying discussion indicate some other obstacles to school district reorganization—very real obstacles which arise from the feelings of people and from the lack of competent research data:

1. *"What evidence can you give me that children are better served in a unified school district?"*

The majority of California's children are educated in unified school districts, or in districts administered in a unified manner. The unified school district is the prevailing pattern of organization in all but a handful of states.

California's ancient, dual-control system (average situation is seven independent elementary districts operating within one union high school district) has been severely indicted over the years by educational and lay authorities within the State and nationally. No logical case has ever been made for multiplicity of school boards and school administrators operating at different educational levels in a natural geographical and economically integrated area.

But the critical and sometimes hostile citizen remains unconvinced and unmoved by such generalities and such "expert opinion." The only way to cut the ground from under his argument in behalf of the *status quo* is to accumulate irrefutable evidence — if such exists — that children are better served in a unified type of school administration. Such studies as have been made in California in very limited areas, and usually not well controlled, tend to indicate that a goodly number of children in rural sections of the State are handicapped in their preparation for high school by California's frontier-day elementary district pattern. California is sorely in need of facts based upon a comprehensive study of this question.

2. *"What evidence can you give me that the unified school district can operate an educational program more efficiently than our present districts can?"*

Here again we have virtually an unknown territory. Definitive research data with which to answer this question in terms of the California scene are virtually non-existent. We can make some excellent and logical general statements, we can quote much expert opinion from all over the nation, we have good research data from other states, notably from New York and Illinois (5), but California research in this field on a scale comprehensive enough to be definitive in answering the question is yet to be conducted.

3. *"What is the true cost of California's 1,000 one- and two-teacher schools?"*

It is known, for instance, that in a fairly typical rural county (4) the following mean costs were officially reported for various sizes of elementary schools for 1948-49:

Two largest districts (total of 1,221 pupils)	$140
Six "middle size" districts (total of 806 pupils)	$186
Twenty-four one- and two-teacher districts (total of 440 pupils)	$266[3]

It is also known that approximately $65,000 of the State School Fund was apportioned in 1948-49 to the County Service Fund of this county. Unknown is the amount by which the costs of each of the schools of this county would be increased if this additional State money were to be charged to each of the thirty school districts in proportion to the educational services received by each from the county superintendent's office.

4. *"What value to the average student is the highly academic program typical of most of California's very small high schools?"*

There are approximately 100 high schools in California under 100 a.d.a. The program offered to their students is from 80 to 100 per cent college preparatory. A comprehensive study of the success of the graduates of such schools in college has never been made. Such evidence as exists, however, indicates that they compete on fairly even terms with their peers from larger high schools.

The economic and educational wastefulness, if any, of the very small high school will be determined only by a carefully conducted study of the contribution these schools make to the great group of their graduates who do not go on to college as compared to the contribution made by a large rural high school with a comprehensive curriculum. Such a study is obviously a long-term proposition. It is vitally needed in view of the fact that, from a geographical standpoint, at least half, if not two thirds, of California's small high schools no longer have any justification for existence. But until the evidence is in, it is difficult to convince parents or teachers that many of these schools should be abandoned or converted into junior high or elementary schools.

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[3] In this and many other rural counties, the local taxpayer in the smallest and most expensive districts, subsidized out of all reason by the State if *true costs* were known, is paying less than half the property tax rate paid for elementary school purposes by a resident of any one of our unified or city school districts! Is it any wonder that favorable votes on a reorganization proposal are so difficult to secure?

5. *"What is the optimum size of school districts for the various geographic, economic, and social characteristics of a state so large and so diversified as California?"*

It is held by some that school districts can become so large that they no longer serve the best interests of pupils, patrons, and citizens generally. No program of school district reorganization on the local level can ignore the fears of bigness, or of centralization of power. There are many districts in California large enough to be efficient and economical educational units which are quite responsive to the wishes of the citizens and school patrons residing within their boundaries. The records of such districts need to be collected via the techniques of historical research, analyzed, and disseminated throughout the State.

Research Needed

The above research topics and others need thorough development if needed reorganization of school districts is to be facilitated in many parts of California. If the college and university departments of education, of political and social science are unable to conduct such studies because of budgetary limitations, some other agency must assume the responsibility if reorganization by vote of the electors residing in the affected districts is to be achieved on any satisfactory basis. The only alternative is a constitutional amendment.

To reorganize school districts, according to all studies conducted by qualified authorities throughout the nation, it takes financial incentives.(5)

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The Why and Whither of Educational Research

TRUMAN L. KELLEY
Santa Barbara, California

WITH the establishment of the *California Journal of Educational Research*, it is timely to discuss the purposes, the methodology, and the hoped-for outcomes which may well loom large in its forthcoming articles.

Of course, space should be given to local issues, such, for example, as "The School Tax Unit in Orange County," but it is to be hoped that a locally inspired study will be concerned with principles that are broad in scope. If an Orange County article is of interest to an educator in Inyo or Siskiyou it will surely be of concern far beyond the boundaries of California. We can hope that problems in school administration, educational psychology, curriculum content, personal and social adjustment, though locally inspired, will have significance which is not limited to the provincialism of their origin.

As a part of a great nation our local problems of individual and social adjustment are national problems as well. We must respect the local and specific as a source of illumination to the state and to the nation. These adjustment problems penetrate so far and so subtly into our social fabric that they may well represent the major concern of this new Journal. However, let us here attend, not to the subject matter of research, but to its social and administrative purpose and to its methodology.

Research Vocabulary or Pedagese

I believe, by studying the meanings of certain terms, we can bring to light characteristics of research which all should seek. A usage of language in a manner peculiar to pedagogy is not *per se* an undesirable practice; it all depends upon the attendant connotations. Certainly every science has developed its own vocabulary.

Consider the expression "felt difficulty," so prevalent in educational literature a generation ago. This expression would jar the layman upon his initial contact with it. He pauses, brings up no memory associations and then infers a meaning, a right meaning, and gains an enriched understanding. If this be pedagese, it is at its best.

Dr. Truman L. Kelley, an eminent authority in the analysis and measurement of mental traits, has had a long and fruitful career in the field of educational research. He recently concluded a span of 40 consecutive years of teaching and research. He has taught at the following universities: Georgia Tech, Illinois, Columbia, Texas, Stanford, and Harvard. He has published many books and professional articles. Dr. Kelley retired from Harvard University last year after having served the institution since 1930. He now resides in Santa Barbara, California, where he is continuing his writing.

Consider "an apperceptive system." The layman pauses, is uncertain of its meaning and is perchance annoyed. But the expression carries a red flag; it cries aloud, "I am a technical expression, and if you don't understand me go back to your text and read up." If the reader does that, he again gains an enriched understanding which is precise and useful. This is pedagese at its second best.

Consider "evaluation." There is no jar nor red flag. The layman who has but a single course in algebra has many associations with the mathematical term. He easily assumes a meaning for the word, but the trouble is that he is wrong in attributing to it the precision, the objectivity and the lack of personal judgment which has characterized his first and only experience with the term. This is pedagese at its worst.

How does the school man who is fond of this term actually employ it? I believe the term, as an educational term, was conceived to cover a procedure less precise than that represented by quantitative test results, not more precise as the mathematical term implies. Thus a test man, or director of research, might give a test and report the scores to the superintendent of schools. All too frequently he will take them, shade them, assume that they have significance in areas beyond that represented by the function in the test, and reach a conclusion, say a rule of conduct. That a rule of conduct is in operation may be necessary and thus fully justified, but that it is called an evaluation of the data we can and should object to. It is not an evaluation by any primitive meaning of the term; it is not that in the informed layman's interpretation of the word; and it is not that because of the logical processes followed. In short, the term is misleading, and it is shrouded in mystery and mysticism.

Research Must Be Definitive

I hope that I have made a point that extends far beyond the meaning of a single term, the point being that educational research has definitive results which may be pointed to with pride. We ask that they be taken at their face value; that the significance of these results, gotten in a definitive manner, be related to other matters of importance by equally definitive processes (correlation, etc.); and, finally and most important, that when one steps beyond these definitive outcomes and assumes other outcomes he does not hide behind a false front and that he does not claim that the earlier precision is continued to his final conclusions.

To be fair to the "evaluators" we should note that what they have done has generally been done in good faith. Though illogical, many an evaluator actually believes that he is more able to appraise the "true significance" of the data than the director of research who is intimately acquainted with the tests involved, with the limitations of administration, with the idiosyncracies of the samples studied, and with sundry reported reliability coefficients and correlations. This is just another illustration of the frequently recurring claim of certain lesser philosophers that scientists are to provide the data and then a higher species, the philosophers, are to interpret them.

When we find in educational circles, as we do, men who assert that scientists, from the very nature of their processes, are unable to understand the real significance of their findings, we can but believe that we are witnessing uninhibited egotism having no sense of humility or belief in the majesty of God and the ingenuity of His ways. These prophets assert that the scientist does not understand the ultimate purpose of life and that he is unable to knead his data into conformity therewith. Though correctness is not their *forte,* they are right on both of these counts. Ultimate purposes are not useful in resolving proximate difficulties, and data have a dignity of their own which will not tolerate warping. For an interpretative device to be useful it must have a restricted standard error, and it is axiomatic to the scientist and should be to everyone that the more remote the conclusion, the greater is its presumptive error.

Significance of Experimental Findings

What is the real significance of an experimental finding? Certainly "real" has a useful meaning other than "ultimate." Today's hangover is real. It sprang from a real occurrence of yesterday and with high probability (perhaps knowable probability) it will lead to real changes tomorrow. There is meaning in the events of a time span, be it short or of appreciable duration. There is meaning in the various events of a spatial span, be the boundaries narrow or quite large. There is meaning in a functioning individual psychological span, be the aspects of life which find expression restricted or quite broad. The person of intelligence who experiences or lives through these spans is more able to find this meaning than one, even of equal intelligence, who views them from a distant cloud.

The meaning of phenomena can never be divorced from the setting and the details under which it occurred. This is not ultimate meaning (except in the sense that the moment is ultimate), but a meaning of a more useful and heartwarming sort, which guides from the known past through the perplexing present to a more enlightened near future.

That an administrator, who cannot understand the connection between yesterday and tomorrow, or between an alpha and a beta particle, should take possession of the philosophers throne and assert that he knows the primitive springs and the distant goals of existence would be amusing were it not for the fact that he frequently dictates social conduct, and like every dictator he does but engender future woe. Knowledge of the path is the scientist's objective, and the virtue of it is his religion.

Certainly experimental research from given conditions to useful conclusions is an arduous process and there is no substitute for it.

The Interrelationships of Measures of Personality, Adjustment, and Teaching Success

MORROW F. STOUGH
San Diego State College

WHO IS the master teacher? The fact that he is gradually assuming a new, broadly-conceived role has tended to complicate teacher-selection and the evaluation of teaching success. The artist teacher has not only qualities such as skill in "putting across" knowledge and interest in increasing general knowledge, but others like community-mindedness, skill in cooperation, social understanding and behavior, understanding children, and faith in the worth of teaching. (1:154-75)

Many of these qualities are based upon fundamental skills and an interest in interaction with other human beings. Rummell (2) calls it "artistry in human relations." These qualities would seem to imply further a feeling of security in or harmony with the environment.

Where might one find evidences of these aspects of personality and adjustment at work in the field of teaching? Would it be profitable to explore such problems as: (1) Why are teachers released from their positions? Should not "poor discipline" for example be analyzed more closely into the interrelationships of factors in both pupils and teachers? (2) Who are the teachers seeking personal and professional guidance? Should the concept of teaching efficiency include some measure of physical and mental energy which each teacher puts into his work? (3) For what mental disorders are teachers hospitalized? Are teachers in particular susceptible to such disorders?

Present Study

A survey of the research on such problems as the above have provided the writer with clues for an investigation of the relationships among measures of teachers' personality, adjustment, and teaching success. Attention has been given to factors in student-teachers' "test personalities" which seem to affect teacher-pupil relationships and teaching success both in the

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Dr. Morrow F. Stough has recently joined the staff at San Diego State College and holds the rank of assistant professor of education. He formerly served as supervisor of elementary education at the University of California, Berkeley. He has also taught in the public schools in Pennsylvania and New Jersey. Dr. Stough's article is based upon his doctoral dissertation which was completed last January at the University of California, Berkeley.

teacher-education institution and in the field. Data gathered during the student-teaching period were used to predict success in the teacher's first year of professional service.

Fifty-seven men and forty-three women, representing seven subject-matter fields on the secondary level, were given the following four personality and adjustment inventories: the *Minnesota Multiphasic Personality Inventory,* the *Johnson Temperament Analysis,* the *Thorpe and Clark Mental Health Analysis,* and the *Bell Adjustment Inventory.* Among the forty subtests were several that seemed to be related to the personal qualities which were descriptive of successful and unsuccessful teachers. These subtests or scales measured the following items: Depressive, Subjective, Self-mastery, Adequate Outcomes and Goals, Schizophrenia, Social Participation, Psychasthenia, and Psychopathic Deviation.

Teaching success was measured in terms of supervisory ratings, reactions of over four thousand pupils, and administrators' ratings.

To facilitate treatment of the data, two extreme groups of teachers consisting of the twenty-five per cent most successful and the twenty-five per cent least successful were chosen on the basis of the above three criteria. The mean scores of these two groups were compared on each of the forty subtests to determine if there was one chance in a hundred of their not being really different.

Findings

1. Both sex groups were normal and stable. Temperament profiles for both groups were distinguished by high scores on the "affection syndrone" made up of the traits: Active, Cordial, and Sympathetic. Poorest adjustment scores were recorded on the subtests, "Schizophrenia" and "Social Participation."

2. On several subtests the mean scores of one group of male student-teachers, who were most highly approved by pupils, differed significantly from comparable scores of an opposite group which was least highly regarded. The chances are ninety-nine in a hundred that the mean scores of the two groups are really different on the following subtests: "Depressive" and "Self-mastery" on the *Johnson Temperament Analysis,* Total Score on the *Bell Adjustment Inventory,* and "Depression" and "Schizophrenia" on the *Minnesota Multiphasic Personality Inventory.* In other words, pupils react most favorably: to male student-teachers who are not depressive, disorganized, withdrawing, or insecure; to those who are composed, participate in group enterprises, and are happy with their work and recreation; to those who face reality, are not excessively worried, and are not lacking in self-confidence.

3. The criterion of supervisory ratings showed fewer significant differences between extreme groups. It would seem that with this sample of

male student-teachers the criterion of pupils' reactions is more closely related to differences in "test personalities" than is the criterion of supervisory ratings.

4. Means for criterion-groups of women differed somewhat on several subtests: "Self-mastery," "Home Adjustment," and "Behavorial Immaturity." The differences between the female criterion-groups were not so clear-cut as those for the male groups.

5. Follow-up reports of a "more promising" group of twenty-one male student-teachers selected on the basis of having above average scores (within their own group) on four out of five subtests ("Adequate Outcomes and Goals," "Depressive," "Self-mastery," "Schizophrenia" and Bell Total Score) indicated that administrators considered eighteen teachers to be above average or superior and three average or below average. In a "less promising" group of fourteen male teachers scoring below average on at least four of the five scales mentioned above, administrators found three teachers to be above average and eleven average or below average.

6. Application of the same selection technique to the female student-teachers produced a "more promising" group of fifteen, a "less promising" one of ten teachers. All fifteen in the former group were rated by administrators as above average. Six of the latter group of ten "less promising" teachers were considered to be above average; four, average or below average.

TABLE I

COMPARISON OF MEAN SUBTEST SCORES OF MALE TEACHERS RATED HIGH AND LOW BY BOTH SUPERVISING TEACHERS AND ADMINISTRATORS

SUBTEST	High Score Group	Low Score Group	Difference	Significant Ratios	
Johnson Temperament Analysis					(%)
Nervous	61.7	68.2	6.5	2.91	(1)
Depressive	60.0	70.3	10.3	4.81	(1)
Subjective	65.5	72.7	7.2	2.24	(5)
Bell Adjustment Inventory					
Social	4.1	9.1	5.0	3.55	(1)
Total Score	13.7	28.7	15.0	4.83	(1)
Mental Health Analysis					
Close Personal Relationships	18.8	17.2	1.6	2.68	(2)
Social Participation	16.4	12.9	3.5	2.05	(5)
Minnesota Multiphasic Personality Inventory					
Depression	15.7	19.9	4.2	2.82	(2)
Psychasthenia	4.2	10.9	6.7	3.56	(1)
Schizophrenia	3.8	8.5	4.7	2.43	(2)
Psychopathic Deviation	11.1	15.0	3.9	3.82	(1)

In a final treatment of the inventory data, two groups of male teachers were chosen on the basis of having received superior ratings in both student-teaching and in the field. Significant differences appeared on these subtests: "Social Participation," "Subjectivity," "Depression," ""Psychasthenia," "Schizophrenia," and "Psychopathic Deviation." All would seem to affect relationships of the teacher with pupils, administrators, other teachers and community. Table I presents the more significant t-ratios.

Subjective, depressive, withdrawing — these are some of the personal traits of the moderately successful or unsuccessful male teacher who has finished one year of professional service.

Conclusion

The findings point out that these secondary school teachers, just as others have been in the past decades, were released from their positions or given "average" ratings because of deficiencies in class management, in establishing harmonious relationships with pupils, and in "getting along" with co-workers and supervisory staff. The old belief that good planning equals good teaching is not necessarily true. The personal factor must be considered.

These findings further indicate that teachers in the secondary schools should assess carefully their personal qualities and check them against those which have been shown to affect interpersonal relationships. Too often the field of secondary education attracts individuals who become so steeped in subject matter that they are blinded to the "human relations" requirement for successful teaching.

Principals, supervisors, and superintendents might well deduce from this study the importance of their role as administrators of personnel. Throughout the research findings, *morale* is the common element which seems to discriminate between successful and unsuccessful teachers. It is within the province, as well as an obligation, of every administrator to provide a healthy psychological climate for the teacher-personnel. Depression, indifference, feelings of inferiority, isolation, and an air of subjectivity masking feelings of lack of confidence, are some of the symptoms requiring immediate attention. They affect teacher-efficiency; they affect the emotional climate in the classroom. They are amenable to change.

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California School Administrative Codes—Their Contents[1]

DAVID M. FLORELL
Lompoc Union Elementary and Union High School Districts
Lompoc, California

IN A study of administrative codes in the public schools of California the writer, as reported in a previous article, determined the extensiveness of their use and described their format. This article attempts to analyze the general content of the codes.

An analysis of the content of the administrative codes immediately raises the question of what matters are included. A perusal of the codes reveals a wide variation of treatment and organization of contents. This study is based on an examination of the major subjects listed in the tables of contents or found from an analysis of the documents.

Findings

A tabulation of certain major subjects contained in the administrative codes is found in Table I. The subjects listed in the table are not all treated as such in each of the thirty-one codes. This does not mean that reference to them is excluded from some of the codes.[2] Reference to the subjects in Table I was noted in each of the documents examined. However, variations show differences in emphasis, organization, and reveal the peculiar needs found in the school districts.

Topics Included

It may be noted in Table I that the frequency with which the major topics are treated ranges from 100 per cent for the "Board of Education" to 45.1 per cent for "Supervision." The subjects listed in the table are the ones on which there was the greatest amount of common treatment.

Dr. David M. Florell has been superintendent of the Lompoc Union Elementary School and Lompoc Union High School Districts since 1947. He had formerly taught in Minnesota, and served as district superintendent of the Owens Valley Unified Schools at Independence, California. Dr. Florell received his bachelor's and master's degrees from the University of Minnesota. His doctorate was awarded by the University of California at Los Angeles.

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[1] This is the second article by Dr. Florell on California School Administrative Codes. In the March issue he described the use and format of such codes. The present article, which concludes the series, presents some pertinent facts regarding the contents of administrative codes.

[2] For example, in one code some reference to teachers was made under the heading, "Miscellanous."

TABLE I

THE NATURE AND FREQUENCY OF CERTAIN MAJOR TOPICS FOUND IN THIRTY-ONE ADMINISTRATIVE CODES OF PUBLIC SCHOOL SYSTEMS LOCATED IN VARIOUS SIZED CITIES OF CALIFORNIA

	Group I Over 100,000	Group II 30,000 - 100,000	Group III 10,000 - 30,000	Group IV 5,000 - 10,000	Group V 2,500 - 5,000	Group VI Below 2,500		
Number of Codes	4	7	6	4	6	4		
Major Topics Included	FREQUENCY OF MENTION						Total	Per Cent
Board of Education	4	7	6	4	6	4	31	100.0
Superintendent of Schools	4	7	6	3	6	4	30	96.7
Teachers	4	5	6	4	4	3	26	83.8
Subordinate Officers of Administration	4	7	6	3	4	1	25	80.6
Non-Certificated Personnel	4	3	5	3	5	2	22	70.9
Pupils	4	4	5	1	3	3	20	64.5
Property	4	4	3	2	4	3	20	64.5
Miscellaneous	3	5	5	1	4	1	19	61.2
Supervision	3	6	4	0	1	0	14	45.1

Board of Education

Since an administrative code is a document containing the policies, rules and regulations of a board of education, it might be expected that all codes would in some manner deal with the governing board. However, an analysis of policies relating to the governing board reveals a wide variation in treatment. The more significant items considered in the various codes include the following:

1. Organization of the Board.
2. Function of the Board and Board Officers.
3. Meetings of the Board.
4. Transaction of Business.
5. Constitutional or Legal Authority for the Board.
6. Election, Term, and Compensation for Board Members.
7. Suspension, Alteration, and Amendment of Board Rules.

Superintendent of Schools

Thirty of the thirty-one codes, or 96.7 per cent, give major consideration to the superintendent of schools as the chief executive officer of the board. The more significant elements covered are the following:

1. Employment, Term, and Compensation.
2. Duties, Responsibilities and Powers.
3. Relationship to the Board and to Other Members of the Staff.

Teachers

The major subject of teachers is dealt with in 83.8 per cent of the codes. As in the case of other topics, the scope of coverage varies but the most common statements of policy include the following:

1. Employment.
2. Assignment.
3. Salary Schedule.
4. Powers, Duties and Responsibilities.
5. Leaves of Absence.
6. Tenure.
7. Professional Conduct.
8. Retirement.

Subordinate Administrative Officers

Policies concerning subordinate officers of administration as a major subject were found in 80.6 per cent of the administrative codes. Some of the common subordinate officers include deputy superintendents, assistant superintendents, principals, vice-principals, and deans. The more important policies covering these positions have reference to these items:

1. Employment and Term of Office.
2. Duties, Powers and Responsibilities.
3. Relationship to Other Staff Members.

Non-Certificated Personnel

Policies regarding non-certificated personnel were found in 70.9 per cent of the codes. Non-certificated personnel include such persons as secretaries, stenographers, clerks, engineers, custodians, gardeners and bus drivers. In some of the larger city districts such persons may be subject to the classified personnel service. Policies most frequently deal with these factors:

1. Employment.
2. Assignment.
3. Promotion.
4. Salary Schedule.
5. Powers, Duties and Responsibilities.
6. Relationship to Other Employees.

Pupils

Slightly less than two thirds, or 64.5 per cent, of the codes contain policies giving major consideration to the subject of pupils. The more common of these are the following:

1. Rights and Responsibilities.
2. Conduct.
3. Student Activities.
4. Attendance and Absence.
5. Home Study.

School Property

As a major topic concerning which there were school board policies, the subject of school property was listed in 64.5 per cent of the codes examined. The more important matters dealt with under this heading were:

1. Protection.
2. Rental.
3. Insurance.

Supervision

The last heading, "Supervision," as listed in Table I was included in 45.1 per cent of the administrative codes. Policies relating to supervision are most frequently found in the larger school systems where specialized personnel for this type of work are employed. Specific elements of policies relating to supervision include the following:

1. Employment.
2. Duties and Responsibilities.
3. Relationships to Other Staff Members.

General Observations

1. Great differences exist in the organization of contents. While some similarities are found in the comparison of codes, the differences are most conspicuous.

2. Great differences exist in the extensiveness with which various topics are treated. These differences are most pronounced in a comparison of codes found in the largest school systems with those in small schools. Some codes were so brief as to be practically useless.

3. The codes are generally organized in terms of personnel — their powers, duties and responsibilities. Most frequently the codes take into account an administrative hierarchy including the governing board; superintendent; deputy, associate or assistant superintendents; principals; and vice principals.

4. Policies and rules and regulations to a certain extent duplicate those established by the State Education Code and the State Board of Education.

5. Statements of policy usually have reference to the whole school system. While some rules and regulations are specific, they generally apply to all personnel within a classification. Details of administration within a specific school are left to the superintendent and principal, but any further rules and regulations must not be in conflict with those of the governing board or with established policies.

6. Administrative codes are concerned with the *processes* of administration. Only scant and infrequent mention is made to *democratic* procedures of administration. The delegation of authority and responsibility is definite and clear-cut, but the manner in which they are exercised is a matter of executive judgment.

Interpreting Test Results to Teachers

EDWARD A. TAYLOR
Alameda County Schools

THERE are many ways of learning about children. Among these are: (1) observation; (2) listening to the child's own story; (3) home visits and conferences with other teachers, children, etc.; and (4) standardized tests. While the following discussion will be concerned entirely with standardized test results, *we must keep in mind that these tests and these test results are only one way to learn about children.*

A standardized test has the following characteristics:

1. Each item has survived most careful scrutiny, the difficulty and value of each being determined by rigid experimental and statistical techniques.
2. The administration of the test has been standardized (directions, time limits, and so forth).
3. The scoring has been standardized.
4. Norms are available.

Test Norms and Their Application

Norms are not standards. A *standard* implies an objective to be reached. A *norm* is a measure of the status quo of the sample upon which the test has been standardized. As a rule these groups are large anonymous groups of public school children upon whom the test publishers have tried out their tests. Often little is known about these norm groups and the school systems from which they have been drawn.

When a teacher expects his class to measure up to norms, he assumes that his class is comparable with the norm group. The following are often uncontrolled variables operating differentially between the norm group and a particular class being tested:

1. Instructional program and objectives.
2. Length of school term.

The main purpose of a testing program is to obtain information which may be used for the improvement of instruction. Research workers are continually faced with the problem of interpreting test results to teachers in a meaningful way so that instruction can be improved.

In this paper, Mr. Taylor describes the kind of presentation and interpretation of test results which has been made to teachers in the Alameda County Schools.

— *Editor.*

Edward A. Taylor is research assistant in the Alameda County School office at Oakland, California, and has served in this position for the past three years. He has been especially interested in the field of testing and has conducted several significant test evaluation studies. Mr. Taylor expects to complete his doctorate in Education at the University of California, Berkeley, this summer.

3. Adequacy of teacher training and experience.
4. Adequacy of textbooks and instructional materials.
5. Entering age of pupils.
6. Cultural level of communities and intelligence of pupils.
7. Rate of elimination from school.
8. Grade placement of subject matter.
9. Promotion policy (acceleration and retardation).

In spite of the overwhelming evidence indicating the evils of retardation, many schools base pupil promotion on pupil achievement. This is particularly true in the Midwest from which many norm groups are drawn. A California school may be at a disadvantage when being compared with these norm groups simply because of the lower average age of the youngsters.

We could improve our performance on standardized tests by raising the entrance age of pupils, by immediately eliminating large numbers of slow learning youngsters from our schools, or by establishing strict achievement criteria for pupil promotion. The entrance age is fixed by law but unfortunately the other measures can be used by administrators in order to make a "good showing."

It is easy to over-emphasize the value of national norms in specific situations. This does not decrease the value of some standardized tests so long as interpretation is made in light of local conditions.

Analysis of a Testing Program

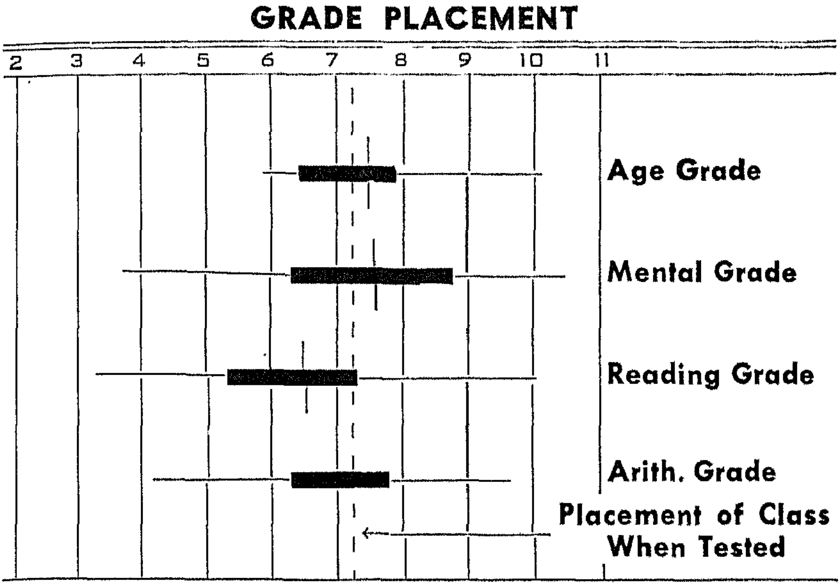
Figure 1 is a graphical presentation of test data obtained from a seventh grade class of forty pupils in an Alameda County School. The tests used were the California Test Bureau's: *California Test of Mental Maturity*, *Progressive Reading* and *Progressive Arithmetic*, all of the Intermediate level. The heavy bars indicate the spread of the middle fifty per cent of the class, the light horizontal lines extending beyond the heavy bars indicate the spread of the upper and lower twenty-five per cent of the class.

The wide spread of the class as a whole is immediately apparent. There is a range of 4.1 years in chronological age. According to age, some youngsters should just be entering the sixth grade while others should be in the sophomore year of high school. The spread of mental ability is even more marked. Some youngsters are able to do no better than third grade work while others are capable of being high school sophomores. A similar range of differences exists for achievement in reading and arithmetic.

The grouping of the middle fifty per cent near the lower end in Age Grade reflects the degree of retardation present. It has been easy to keep out those who are "too young" for seventh grade, but this teacher or administrator has not been willing to advance all those who are really too old to stay in the group.

FIGURE 1

CHRONOLOGICAL, MENTAL, READING AND ARITHMETIC GRADE PLACEMENTS FOR A SAMPLE SEVENTH GRADE CLASS OF FORTY PUPILS IN ALAMEDA COUNTY



The spread in reading achievement is much greater than in arithmetic. This is probably due to more grouping for reading instruction than in arithmetic. In spite of this, reading achievement is a half year below arithmetic achievement and probably reflects the presence of bilingual pupils in the class. These bilingual children are handicapped in all language tests.

Five questions seem relevant at this point:

1. Are all these children really in the same grade?
2. Can they all use the same text books?
3. Are we being fair to the bright pupil?
4. Are we building up a defeatist attitude in the slow pupil?
5. Do we really understand this class well enough to meet individual needs?

Individual Case Studies

From the forty youngsters in the class tested, seven are here selected for individual consideration. These children were chosen because their test data offer possibilities for the beginnings of individual case studies. The test scores of these pupils to be considered are shown in Figure 2.

Before attempting to interpret the test results for these youngsters we must consider the nature of the tests used and the meanings of various grade placements for each child.

FIGURE 2

TEST DATA FOR SEVEN PUPILS SELECTED FROM A SAMPLE SEVENTH GRADE CLASS OF FORTY PUPILS IN ALAMEDA COUNTY

	BASIC DATA			MENTAL MATURITY				READING			ARITHMETIC		
Pupil's Name	Chron. Age Yr.	Chron. Age Mo.	Age Grade	Total	Non-Verb.	Verb.	I.Q.	Vocab.	Compr.	Av. Read.	Reas.	Fund.	Av. Arith.
Lenore	11	7	6.0	7.2	7.6	7.0	111	7.3	7.3	7.3	7.7	8.1	8.0
Leo	12	9	7.1	6.8	6.0	7.3	97	7.2	6.9	7.1	7.1	5.3	5.9
Robert	12	6	6.8	9.2	11.0	8.5	117	6.7	9.1	7.5	10.6	8.8	9.6
Dora	11	9	6.2	6.7	9.0	5.8	105	6.8	6.4	6.7	6.6	7.9	7.4
Martha	12	1	6.5	9.0	7.6	9.6	119	8.5	4.6	6.9	8.8	8.1	8.4
Sheryl	11	7	6.0	9.0	5.6	10.5	124	8.5	9.1	8.8	8.0	8.2	8.2
Ronald	12	4	6.7	7.6	12.2	5.8	107	6.2	6.3	6.3	7.4	6.5	6.8
Class Average	12	11	7.3	7.4	8.2	7.2	102	6.5	6.4	6.5	7.3	6.8	7.0

Note: All figures except I.Q. and chronological age are in grade placement.

Immediately following the name of each child is his age and age grade. The *age grade* is the grade that the child should be in according to his age.

The column *Total Mental Maturity* shows the mental grade placement of the child. It indicates the grade level of work that might be expected of the child on the basis of his intelligence. The next two columns, *Non-Verbal* and *Verbal*, are mental grade placements according to performance on the non-language and language sections of the *California Test of Mental Maturity*.

The columns *Vocabulary* and *Comprehension* under READING show grade placements on the vocabulary and comprehension sections of the reading test. Under ARITHMETIC the columns *Reasoning* and *Fundamental* give grade placements on the reasoning and fundamentals sections of the arithmetic test.

In the light of test performance alone we can make certain observations and recommendations for the seven children listed in Figure 2.

1. LENORE—

   This girl is one of the youngest in the class. Although almost a year and a half younger than class average, in achievement she is well above class average. Other things being equal, she seems to be well placed and should probably be left where she is.

2. LEO —

   It will be noted that this youngster is low in average arithmetic. The arithmetic scores indicate that his weakness is in the fundamentals. Further testing might reveal bad habits or repeated errors of one type that could be easily corrected by some remedial teaching.

3. ROBERT —

   The most accomplished member of the class in arithmetic. It will be noted that his reasoning grade placement is almost two years ahead of his placement in fundamentals. However, we could hardly expect his arithmetic fundamentals to rise much higher since he is already two years ahead of the rest of the class. A somewhat similar situation holds for Robert's reading scores. His vocabulary ability is almost two and one-half years below his comprehension, even though his vocabulary ability is ahead of class average. He could profit by vocabulary building activities, though he is not likely to get them. *Are we being fair to this bright boy?* Robert is a *possible* candidate for extra promotion and *certainly* a candidate for an enriched program in all areas.

4. DORA —

   In arithmetic, fundamentals are 1.3 years ahead of reasoning placement. Perhaps she has been over-drilled in fundamentas and not exposed to situations in which she has had to think through problems in arithmetic. Dora's mental test scores indicate a marked non-verbal tendency. As a whole, her test performance is hard to interpret. More information is needed to give a clearer picture of this girl.

5. MARTHA —

   This girl's reading data indicate she may be a word-caller. The matter of word-calling doesn't seem too serious because she is already better than average in reading. Since the class as a whole is low in reading, perhaps she will improve when the total group is given more attention.

6. SHERYL —

   This girl is much like the last one, except that she seems more intelligent. Her mental test scores indicate a very high discrepancy in favor of verbal ability, almost five years. The fact that she is one of the youngest in the class, makes us wonder as to how she gets along socially with the others. Sociometric data and teacher observation are needed to give proper insight into this girl and her status within this group.

7. RONALD —

   Ronnie is slightly below the class level of achievement, but not seriously so. His mental test scores, however, show that his non-verbal ability is almost six and one-half years ahead of his verbal ability. This very definitely indicates a non-intellectual reading handicap. If, by suitable remedial reading techniques, his verbal ability could be brought up to the level of his non-verbal ability, his measured I.Q. would rise from 107 to 141. Will the teacher help him? Here is a genius looking for a sponsor!

These observations, however, must not be accepted as absolute or final without further confirmation from other sources, including teacher observations.

The Working Heights of Elementary School Pupils as a Factor in School Construction

NICKOLAUS L. ENGELHARDT
Educational Consultant

LILLIE LEWIN BOWMAN
Director of Bureau of Research
San Francisco Unified School District

THE ARCHITECT, in planning an elementary school, is concerned with the adjustment of heights to the variations among the children of the different grades. Failure to place working surfaces, drinking fountain orifices, chalk and tack board, shelving, and the like at comfortable heights, making use possible for the greatest number in each grade presents serious handicaps to school building utilization. The questions first to be raised are:

> How tall are San Francisco children in their various age groups?
> Do the heights vary by sections or racial groups?
> Are San Francisco children taller or shorter than children elsewhere in the nation?

The Bureau of Research of the San Francisco Public Schools secured the answers by studying 2,560 children now attending the city's schools.

Standing Heights of Elementary School Children

By Grade and Age, June 1949

The survey was made in grades kindergarten to six of an unselected San Francisco school population. The 2,560 pupils whose heights are tabulated in the summaries which follow are typical of four distinct areas in

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Dr. Nickolaus L. Englehardt, formerly professor of education at Teachers College, Columbia University, is a well-known authority in the school survey field. Currently he is serving as educational consultant to the San Francisco School District in its projected building program. He has served in a similar capacity in other large school systems throughout the nation.

Dr. Lillie Lewin Bowman, director of the Bureau of Research, San Francisco Unified School District, has a long record in the field of research. After serving for ten years as supervisor, she became assistant in the Bureau of Research, and four years ago was elevated to the directorship. Dr. Bowman has taught in both California and Oregon; she has served also as instructor and lecturer at the University of California, Berkeley, and at the University of North Dakota. She is a member of the editorial board of the California Journal of Educational Research.

San Francisco. The 300 or more pupils at each grade level are representative of not only their own district but, with one exception, are typical of San Francisco children. Commodore Stockton School, which is almost 100 per cent Chinese, resembles the other three schools at kindergarten level only. Regardless of the fact that the children are somewhat older, on the average they are from one to two and one half inches shorter than children at the same grade level elsewhere in the city.

TABLE I

STANDING HEIGHTS BY GRADE:
2560 SAN FRANCISCO ELEMENTARY SCHOOL PUPILS, JUNE 1949

Height to Nearest Inch	(1) Kindergarten	(2) First Grade	(3) Second Grade	(4) Third Grade	(5) Fourth Grade	(6) Fifth Grade	(7) Sixth Grade
67 plus	....	....	....	....	....	....	4
66	....	....	....	....	....	3	2
65	....	....	....	....	....	....	8
64	....	....	....	....	....	2	19
63	....	....	....	....	....	9	11
62	....	....	....	....	1	10	15
61	....	....	....	....	1	16	35
60	....	....	....	2	7	25	40
59	....	....	....	3	6	49	34
58	....	....	....	3	23	43	31
57	....	....	1	5	35	49	36
56	....	....	3	9	53	53	20
55	....	....	1	29	51	31	22
54	....	1	12	37	36	30	12
53	....	3	17	57	50	15	9
52	....	7	23	60	37	11	1
51	....	13	41	64	29	9	....
50	2	30	61	53	17	3	1
49	7	46	52	23	5	....	....
48	13	70	62	15	10	....	....
47	28	83	40	15	5	....	....
46	52	75	31	1	1	....	....
45	54	56	13	2	....	....	....
44	67	30	5	....	....	....	....
43	44	21	4	....	....	....	....
42	47	7	3	....	....	....	....
41	19	2	1	....	....	....	....
40	6	....	....	....	....	....	....
39	3	1	....	....	....	....	....
Total	342	445	370	378	367	358	300
Q_3	46.3	48.8	51.1	53.9	56.7	59.5	61.5
Median	44.8	47.4	49.5	52.3	54.8	57.6	59.5
Q_1	43.2	45.9	47.9	50.7	52.7	55.7	57.3

In Table I, columns 1 and 2, showing the heights of kindergarten and first grade children, it is interesting to note the extremely wide range of heights. With the age range rarely exceeding one and one-half year, the heights range from 39 inches to 54 inches, the median height being 47.4 inches. Fifty per cent of the first grade children, however, are between 45.9 inches and 48.8 inches.

Although the age range widens as children progress through the grades, columns 3, 4, 5, 6, and 7, showing grades 2 to 6 inclusive, do not present a significantly wider range in heights.

A range of three inches, on the other hand, may represent the difference between good posture or poor posture and comfortable or uncomfortable working conditions. The need for flexibility in school working

TABLE II

HEIGHT BY AGE—KINDERGARTEN THROUGH GRADE SIX;
FOUR SAN FRANCISCO ELEMENTARY SCHOOLS, JUNE 1949

Height to Nearest Inch	Under 5-0	5-0 5-11	6-0 6-11	7-0 7-11	8-0 8-11	9-0 9-11	10-0 10-11	11-0 11-11	12-0 12-11	13-0 13-11	Total
67 plus....	....	....	....	....	....	....	....	3	1	....	4
66	....	....	....	....	....	....	2	2	....	1	5
65	....	....	....	....	....	....	....	5	2	1	8
64	....	....	....	....	....	....	....	11	6	4	21
63	....	....	....	....	....	....	5	12	2	1	20
62	....	....	....	....	....	....	3	15	8	....	26
61	....	....	....	....	....	....	11	27	11	3	52
60	....	....	....	....	1	7	17	36	12	1	74
59	....	....	....	....	1	5	29	43	14	1	93
58	....	....	....	....	2	18	37	32	12	....	101
57	....	....	....	....	7	31	44	38	5	1	126
56	....	....	....	3	11	42	43	35	4	....	138
55	....	....	....	3	27	40	34	27	3	....	134
54	....	....	2	12	32	34	28	19	1	....	128
53	....	....	5	16	51	45	22	11	1	....	151
52	....	....	13	29	51	29	17	....	....	....	139
51	....	....	20	41	55	27	12	1	....	....	156
50	....	6	33	59	44	19	5	1	....	....	167
49	....	8	55	40	22	7	....	1	....	....	133
48	....	24	76	41	21	6	2	....	....	....	170
47	....	39	80	35	15	2	....	....	....	....	171
46	2	60	74	22	1	1	....	....	....	....	160
45	2	62	47	15	2	....	....	....	....	....	128
44	6	70	22	1	....	....	....	....	....	....	99
43	8	41	16	2	....	....	....	....	....	....	67
42	12	37	6	2	....	....	....	....	....	....	57
41	5	15	1	1	....	....	....	....	....	....	22
40	2	4	....	....	....	....	....	....	....	....	6
39	1	3	....	....	....	....	....	....	....	....	4
Total........	38	369	450	322	343	313	311	319	82	13	2560
Q_3	44.1	46.7	49.3	51.6	53.9	56.6	58.7	60.9	61.9	64.7	56.2
Median ..	42.9	45.2	47.7	50.0	52.2	54.6	56.8	58.8	60.1	63.5	51.6
Q_1	42.1	43.8	46.3	48.1	50.6	52.6	54.7	56.6	58.5	61.1	47.6

conditions is further emphasized by the fact that children of the same height may be found in grades 1 to 6 inclusive.

In the sixth grade of the school sampled, 25 per cent of the children were over 61½ inches tall. At the lower extreme, however, 10 per cent of the sixth grade pupils are shorter than the tallest 10 per cent in the third grade.

Table II, showing the height of children for each age, makes us aware of the fact that a wide range in height is not necessarily the by-product of retardation. Six-year-olds, for example, range from 41 inches to 54 inches. Ten-year-olds range from 48 inches to 66 inches. There are children five feet tall or taller in age levels 8 to 13 years inclusive.

Bennett in his volume on "School Posture and Seating" reports the standing heights of 1500 children of grades 1 to 12. Comparison shows approximately the same variations among grades as indicated in the San Francisco study.

Working Heights of School Children

The foregoing facts on standing heights of school children must be reduced to working heights to be usable by the architect. The chart of working heights presented here includes grades beyond the elementary. It has been prepared through analysis of situations in the local schools, the study of common planning practices, and by cross reference to the standing heights data shown in this survey.

TABLE III

SAN FRANCISCO CHART OF WORKING HEIGHTS IN INCHES FOR KINDERGARTEN THROUGH GRADE 12

	Kindergarten	Grades 1 - 3	Grades 4 - 6	Grades 7 - 9	Grades 10 - 12
BUILDING APPURTENANCES					
Door Knobs	36	36	36	36	36
Drinking Fountains	24	24-26	31	32	34
Lavatories	23	25-27	27	30	30
Light Switches	36	48	48	50	50
Panic Bar	30	30	30	36	36
Sinks	25	26-28	28-30	31	32
Soap Dispenser	34	40	44	44	44
Stair Riser Heights	6	6	6	6	6
Telephone	....	36-40	48	60	60
Toilet Stalls	42	60	60	64	64
Towel Dispenser	40	40-46	48	54	60
Urinal	....	36 (3 inch platform optional)	36 (3 inch platform optional)	36 (4 inch platform optional)	48 (4 inch platform optional)

TABLE III — Continued

SAN FRANCISCO CHART OF WORKING HEIGHTS IN INCHES FOR KINDERGARTEN THROUGH GRADE 12

	Kindergarten	Grades 1 - 3	Grades 4 - 6	Grades 7 - 9	Grades 10 - 12
Wainscot, Toilet	42	60	60	64	64
Water Closet	12	12-14	16	16	16
Window Ledge	27	27	33+	33+	42+
Wainscot, Corridor and Community Room	54	54	54	60	60
BUILT-IN FIXTURES					
Cabinets —					
Books and Magazines	42	48	60	72	72
Display, Storage					
Top	54	58	60	70	84
Bottom	24	28	30	34	36
Storage and Supplies	72	72	72	72	84
Chalk Board					
Top	56	56-59	70-72	80	84
Bottom	20	20-23	28-30	34	36
Chalk Rail	20	20-23	28-30	34	36
Counters —					
General Office	33	33	36	38	42
Classroom Work	24	26-30	30-32	30-32	32
Cafeteria	30	30	30	36	38
Cafe (Home School)	26	26	....	....	....
Hook, Coat (Toilet Stall)	36	38-44	46-54	60	60
Lockers, Clothes and Books	44	46-52	54-62	36 or 72	36 or 72
Mirror (lower edge height)	30	32-36	38-42	42	45
Hook Rail, Coats and Hats	36	38-44	46-54	60	60
Shelves —					
Books (Toilet Room)	....	....	48	48	48
Books (Toilet Stall)	....	....	48	48	48
Hat and Lunch Pail	42	48	52	....	....
Rails —					
Directional	24	30	34	34	34
Stair Hand	30	30	30	30	32
Tack Board					
Top	80	80	80	80	102
Bottom	20	24	24-30	34	36
Fire Extinguisher (Tank Type)	TO BE RECESSED AT BASEBOARD HEIGHT				
EQUIPMENT					
Benches, Cafeteria	14 and 17	14 and 17	14 and 17	17	18½
Chairs	11-13	11-13	13-14½	16-17¼	18
Chairs	....	15	16	....	....
Desks, Classroom	....	....	25-27	28-30	31
Desks, Classroom	....	....	29	....	....
Easels	4-5 ft.	6 ft.	....	....	....

(Easels to be adjustable for various heights)

TABLE III — Continued

SAN FRANCISCO CHART OF WORKING HEIGHTS IN INCHES
FOR KINDERGARTEN THROUGH GRADE 12

	Kindergarten	Grades 1 - 3	Grades 4 - 6	Grades 7 - 9	Grades 10 - 12
Height Measuring Device	5 ft.	5 ft.	....	....	....
Pencil Sharpener	32	36	44	48	48
Screens, Folding	48	60	72	78	78
Seats	12	12-14	14-16	17	18
Stools	6	12	18	24	....
Tables —					
Cafeteria	23 and 28	23 and 28	23 and 28	28	31
Classroom	19	19-22	25-27	28-30	31
Classroom	----	25	29	----	----
Drawing	24	26-30	30-32	....	....
Work	24	26-30	30-32	30-32	32

The architect may find in the standing heights tables justification for variation from the working heights chart. The wide range of heights in each grade presents problems which must be thought through fully. In the first grade, for example, working height adjustments for children ranging from 39 inches to 53 inches in height will be difficult but not altogether impossible for certain installations. The median child is 47.4 inches tall and his needs should determine most decisions, but differences in heights may be made for features occurring in large numbers, such as working counters, hook rails, and especially movable equipment.

All of the foregoing facts are of significance in planning suitable facilities for working and learning in our schools.

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The Television Habit Among High School Students

The scholastic grades of Roselle, New Jersey, high school students who watched television programs regularly dropped more than 15 per cent when they took up the viewing habit, according to the report of the officials of the Abraham Lincoln High School. The survey applied to 310 students who either have sets in their own homes or see programs regularly in neighbors' homes. The school's total enrollment is 990 students, of whom two thirds said they did not see video programs regularly. The results of the Roselle survey, for the most part, paralleled those of a similar survey conducted at the Burdick Junior High School of Stamford, Connecticut. The average amount of time devoted to television, according to the Roselle students, varied from 31 hours a week for those in the seventh grade to 19 hours for those in the twelfth grade. (*New York Times*, March 14, 1950)

CLASSIFIED BIBLIOGRAPHY OF GRADUATE THESES AND DISSERTATIONS IN EDUCATION OF CALIFORNIA COLLEGES AND UNIVERSITIES IN 1949

This classified bibliography includes the titles of all theses and dissertations completed at California colleges and universities in 1949. For the sake of convenience, the following categories are used to classify the studies:

I. Historical and Comparative Education
II. Curriculum
III. Growth and Development
IV. Teaching and Learning
V. Guidance and Counseling
VI. Teacher Selection and Education
VII. Educational Sociology and Philosophy
VIII. Higher Education
IX. Administration and Finance
X. General and Miscellaneous

To save space, colleges are designated as follows:

Claremont . . . . Claremont Graduate School, Claremont
Pacific . . . . . . College of the Pacific, Stockton
Stanford . . . . . Stanford University, Palo Alto
U. C. . . . . University of California, Berkeley
U. C. L. A. . . . . University of California at Los Angeles
U. S. C. . . . . . . University of Southern California, Los Angeles

The listing of Masters' theses are to be found on pages 126 to 139; Doctors' dissertations are on pages 139 to 144. Copies of these studies are available for circulation and may be obtained by writing to the library of the college or university listed.

MASTERS THESES

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Cloonan, Margaret M., *An Evaluation of a Body Mechanics Program in Certain Long Beach Elementary Schools.* (U.S.C.)

Cromer, Hiram, *The Philosophical, Psychological, and Sociological Bases for an Industrial Arts Program.* (U.C.)

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Curry, Marion A., *County School Music Programs of California.* (Stanford)

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Galeno, Ramona T., *Children's Science Concepts by Grade Levels.* (Stanford)

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Curriculum — *Continued*

Genochio, Frank A., *The Training of Navy Electronics Technicians and a Terminal Course in Radio Electronics.* (Stanford)

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THE EDITORS SAY:

It Can Be Done!

THE feature article in this issue of the *Journal* recalls the familiar poem, "It Couldn't Be Done," by Edgar A. Guest. Who would think of trying to measure the so-called "intangibles" in education? Numbers of people in the evaluation field during the past decade or two have acknowledged that it could not be done. Or if they did not acknowledge it, they professed an unwillingness to believe it might be done. But researchers Lewerenz and Horn, of the Los Angeles City Schools, have made a valiant and significant start in solving the difficulty. The impossible will take them only a little longer.

The article by Lewerenz and Horn should be read carefully by educational leaders, or anyone generally responsible for interpreting the modern curriculum to school patrons. To those who insist on the measurable comfort of a simple "three R's" curriculum, it is high time that education demonstrate the measurable effectiveness and attainment of some of its more complex methods and objectives. Assuming that the Los Angeles research eventuates in valid procedures or devices of evaluating pupil progress in the area of "intangibles," we may be much closer than ever before to accumulating conclusive evidence that children in modern schools are being prepared for competency in citizenship and personal development as well as the traditional fundamentals. When this goal is attained, the teaching profession will have powerful new instruments for interpreting and reporting pupil growth in hitherto unverifiable, but important areas of learning.

The research by Lewerenz and Horn should stimulate others to pioneer in the relatively unexplored frontier of measuring pupil learning in pupil behavior terms. Corroborative research in due time should establish valid technics of examining the less objective aspects of teaching and learning. Famous philosophers have said that "whatever can be measured is real" and that "whatever exists at all exists in some amount." American ingenuity, at this moment of the Los Angeles variety, combined with insatiable curiosity invariably leads to an effort to solve the currently insolvable. Our record of successful solutions is respectable.

Measuring the "Intangibles" in Education

DR. ALICE HORN AND DR. ALFRED S. LEWERENZ
Los Angeles City Schools

A FIRST STEP in measuring the so-called "intangibles" of education is to cease thinking of them as illusive. The objectives of the curriculum are stated, for the most part, in terms of behavior. Behaviors manifested by individuals are usually in terms of action that can be observed and so recorded. It well might be a basic rule of evaluation that measurement should be in terms of pupil growth toward objectives. If an objective is so rarified in nature that its attainment does not result in observable changes in behavior, then its right to be included in the curriculum may be questioned. Goal setting and curriculum planning should be in terms of attainable objectives. High-sounding goals which are not within the capacity of the teacher to teach or pupils to attain are simply so much pedagogical window dressing. Such goals are pleasing to the philosophical thinker, but lack in practical application because the realization of such goals has not been translated into observable behavior.

What Are the Intangibles?

The sections of the curriculum that we designate by the term "intangibles" are those desired behaviors other than attainment in the basic skills. In most cases they are equivalent to the old fashioned common virtues. Some of the areas of the so-called "intangibles" are: (1) citizenship, (2) character and human relations, (3) health and safety, (4) understanding of environment, (5) vocational competence, (6) consumer effectiveness, (7) successful family life, (8) use of leisure time, (9) appreciation of beauty, (10) effective thinking, and (11) world-mindedness. Every one of these eleven objectives can be described in terms of behavior. For example, in the case of "Citizenship," pupil growth can be measured in terms of the extent to which he practices democracy in group

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Dr. Alice M. Horn is consultant in the Evaluation Section of the Los Angeles City Schools, a position she has held for the past two years. Her professional experience includes teaching, counseling, supervising, and administration in the Los Angeles City Schools. She has also taught at the University of Southern California, from which institution she received her doctorate in 1937.

Dr. Alfred S. Lewerenz for the past five years has served as head supervisor of the Evaluation Section of the Los Angeles City Schools. He previously served as supervisor of vocational education for the district. Dr. Lewerenz completed his doctorate at the University of Southern California in 1937. He is a member of the editorial board of the California Journal of Educational Research.

relations and the ability he shows in detecting and analyzing propaganda in public affairs.

Fortunate is the evaluator where the areas of the curriculum have been stated in terms of behaviors. This is the case in the Los Angeles City Schools. The Curriculum Division has prepared the *Point of View*[1] which is, to quote, "a unifying factor around which the entire educational program can be built." It has been written in the belief that educational purposes should be based on the needs for effective living in our American democracy. The needs for effective living include the eleven areas mentioned above. With each area there is a one-page statement of how an individual acts who is achieving that objective.

For other California school districts, the *State Framework*,[2] now in preparation, may serve much the same purpose. The *State Framework* offers four main purposes of education which are:

I. Full realization of individual capacities
II. Human relationships
III. Economic efficiency
IV. Civic responsibility

Under the heading "Civic Responsibility," for example, the *Framework* says that effective citizenship requires that the individual:[3]

1. Acts upon an understanding and loyalty to democratic ideals.
2. Understands and appreciates the positive advantages of American institutions.
3. Be sensitive to the disparities of human circumstances.
4. Acts with others to correct unsatisfactory conditions.
5. Understands local, state, national and international social structures and social processes.
6. Achieves skill with processes of group action; in student self-governing groups learns criteria for making wise choices of action.
7. Knows the achievements of the people who have made the United States a great nation.
8. Develops defenses against propaganda.
9. Accepts honest differences of opinion.
10. Realizes the importance of wise use of the resources of the nation and of the world.
11. Measures scientific advances by contributions to the general welfare.
12. Be an active cooperating member of the world community.

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[1] *Point of View*, Los Angeles City School Districts, Publication No. 470, 1949. 40 pp.

[2] *A Framework for Public Education in California*, California State Department of Education. Sacramento: October, 1948. 28 pp.

[3] *Ibid.*, p. 9.

13. Works to achieve and maintain peace in the world.
14. Respects the law.
15. Meets his civic obligations.

Here, then, in the *Point of View* and the *State Framework of Education* are the bases for an evaluation of pupil growth. The evaluator needs only to select the instrument or technique best adapted for the measurement of a particular behavior. Thus a test of factual knowledge could be built for Items 5 and 7 above. Rating scales administered by trained observers could be employed in the case of Items 4, 6, 8, 10, 11, 12, and 13. Such measures, of course, would need to be set up according to the maturity level of the pupils and with due regard for their ability and background of experience.

Behavior Studied in Lifelike Situations

If we wish to measure behavior it is better that the testing situation resemble life rather than classroom conditions. Back in the early 1920's it was found by Vernon Cady[4] that in measuring a trait such as honesty, incentive had a lot to do with the degree of honesty shown. Scientific evidence has thus indicated that even students who under usual conditions were considered highly honest would actually cheat in a situation in which there was a high expectancy that they would not be detected.

The work of Hartshorne and May in their *Studies in Deceit* was to some extent patterned after these early Cady studies as the acknowledgment in Volume I indicates.[5] To the present day evaluator the significance of these investigations is that one needs to have a test situation as nearly as possible like a life situation in order to measure true behavior. Paper and pencil tests answered in the calm of the classroom do not give any satisfactory measure of attitude or tendencies for behavior. It is only when real emotional forces are operating that one can hope to secure an adequate measure of the quality being evaluated. Therefore, in today's experimental efforts toward evaluating the so-called "intangibles," it is important that the devices which are being built to measure behavior are applied, as nearly as possible, to a real home or neighborhood activity free of the usual classroom supervision.

The best test setting of all probably would be to take a group of children to an isolated spot where none of the ordinary controls were in operation and then observe their behavior. It is recognized that such ideal conditions for observing behavior are not possible or practical and that the classroom will have to remain the locale of such testing. Evaluation techniques, however, must free behavior as much as possible from the usual controls. Test situations must allow for the free expression of emotional traits and character qualities. In one such measure, the *Mystery Box Game*, which is described below, the procedure has been tailored to fit these premises.

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[4] Cady, Vernon M., *The Estimation of Juvenile Incorrigibility*, Journal of Delinquency Monograph, No. 2. California: Whittier State School, 1923. 140 pp.

[5] Hartshorne, Hugh, and May, Mark A., *Studies In Deceit*, Macmillan, 1928.

Mystery Box Game

Some years ago one of the authors of this article devised a test which had as its purpose an appraisal of the ability with which the members of a class group work together.[6] This device was called the *Mystery Box Game* and was standardized for its original purpose of measuring group cooperation. The completion of the game required that the pupils work together to get a solution, and the amount of time they took to finish the game was one direct measure of their ability to cooperate as a group. The *Mystery Box Game* consists of a black suitcase containing: (1) a smaller case filled with little cards of various colors on each of which is printed a letter and a number; (2) an unlocked wooden chalk box painted red in which is placed a mechanical toy; (3) a second wooden chest (locked) containing a more complex type of toy; (4) a set of colored cards on which are printed completed sentences; and (5) sets of directions for completing the game. The class to be measured is shown the unlocked box. The marble-operated toy inside this box is taken out and demonstrated. A general discussion of the principle of gravity follows as related to the operation of the toy. By this time the children in the class are much interested in the toy and intrigued by the whole idea of the *Mystery Box Game.* Next, the small wooden chest is shown and the class is told that they may see the contents — an even more interesting toy — if they can find the key that unlocks the chest. Directions for finding the key are then read and all details that are needed for the solution of the test are given to the students. The directions state that each pupil will be given a number of little cards of different colors and numbers and that the answer as to where the key is hidden will be found by placing cards of the same color together in consecutive numerical order. The group is also told that they may trade cards, may talk to each other, and work with partners or in groups.

After the directions, each member of the class is given a handful of the little cards bearing letters and numbers, perhaps 10-15 cards in all. In spite of the fact that all of the directions for playing the game are given at the time the box is opened, it is interesting to note that most pupils have to work out these directions for themselves during the process of the game. In the initial stages of the game itself, the pupils spend some time getting the general procedure clear in their own minds; that is, pupils tend to work alone for a few minutes but to a varying degree begin to work together either with partners or with groups for the purpose of exchanging cards in order to build sentences all of one color.

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[6] Lewerenz, Alfred S., "Measurement of Pupil Behavior in the Classroom," *Educational Method,* November, 1932. pp. 98-103.

As a sentence is completed the children, who have worked on it, write it on a slip of paper, sign their names and hand in the slip to the test administrator. If the sentence is correct the names are read aloud together with the sentence, and the same sentence on a large card is then placed on the wall according to a numerical sequence. When all twelve sentences have been completed and the cards are in order on the wall, the children are able to determine where the key to the Mystery Box is hidden. The child who first writes down and signs his name to the correct statement of where the key is hidden has the honor of securing the key, opening the box, and showing the contents to the class.

Behavior Revealed in Game Test

During the progress of the game there are numerous opportunities for the children to display both positive and negative characteristics such as leadership, followership, indifference, cheating, laziness, parasitism, etc. The speed with which the game is completed, in part, depends upon the average mental ability of the group plus their experience in group activities. As stated earlier, the original purpose of the test was to measure group cooperation and the original standardization was made on that basis. However, while the test still fulfills its original purpose well, repeated administrations have shown that there are many additional valuable uses to which the device may be put. The test provides a planned situation so well organized that the administrators free themselves from the necessity of continuing to motivate behavior. It is possible, therefore, for most of the observers to spend their time on observation of behaviors as they occur. The device carries so much appeal to children that once the project is started it carries itself to completion. Due to the intense interest and desire to win, a great many of the usual inhibitions of the classroom are thrown aside and youngsters exhibit their more basic social personality patterns, such as leadership, honesty, cooperation and planning, and their negative counterparts.

It has been found that for best results a number of observers should be present, i.e., one observer for every four to six children. Fortunately, this has usually been the case due to the fact that the game has been administered with a semi-clinical group made up of teachers, supervisors, administrators, counselors, school nurses, social workers, etc. A number of observers is necessary to secure the maximum value out of the game.

In giving the *Mystery Box Game*, our practice has been to assign a given number of children to each observer to watch carefully during the activity of the game. One or two individuals who have had sufficient experience with the test to understand the probable meaning of certain behaviors, such as hoarding cards, finger sucking, masked theft, aggression, etc., specialize on an over-all observation. Before the game starts each child has a card bearing a number pinned to his back in order that he may be more easily identified by observers.

The general climate of the classroom manifests itself during the giving of the game and certain classes show an appreciably greater amount of ability to work together in groups than others. This, in turn, seems to be one result of the class having had the privilege of working together on committees, etc., as part of their educational program.

Analyzing Game Test Results

At the present time it would appear that one of the most valuable uses of the game is in detecting possible significant behaviors, and in checking the probable meanings of these behaviors with all of the known data about the child.

The *Mystery Box Game* does not give the whole picture concerning the child, but gives significant clues which in turn are useful in drawing out information concerning the child. During the clinical discussion which follows, an attempt is made to interpret the results and, when possible, to offer suggestions for helping to correct tendencies that have caused the child to make bad adjustments. For this reason, the clinical discussion held after the test is given is one of the most important features of the *Mystery Box Game.* Frequently a teacher changes her previously hostile attitude toward a pupil because of her close observation of his performance in the group. This is especially true of a certain type of pupil who has been successful in disrupting the class and has, therefore, disturbed the teacher. His aggressive and anti-social behavior has been such as to lead this teacher to believe that this child is a leader of others. However, close observation of such a child may reveal that he is actually rejected by other classmates. The *Mystery Box Game* makes it possible for the teacher to see the youngster as needing help. No longer does she feel that he is a power agitating against her.

To be adequate in the interpretation of the *Mystery Box Game* would take as much training and background as is needed for using the *Rorschach Ink Blot Test.* Certainly the test, as it has been described here, would be valueless in the hands of the inexperienced and could actually prove to be a dangerous device. However, a team of three individuals carefully trained in the administration of the test can do much in service education by providing opportunities for teachers to observe pupils in action. This procedure would not only clarify methods of thinking and treatment of those specific pupils during the group discussion following the test, but would enrich the whole viewpoint of the teachers toward children in general. Among other findings has come a better understanding of the types of leadership and its manifestations in the classroom situation. The importance of the natural leader of low intelligence, for example, is seen more clearly. Individuals possessed of little creative ability, but strong in the capacity to lead others, can actually influence more intelligent individuals to take the wrong course of action. The adjustment and training of such people has great significance in a democracy.

(*The second half of this article will appear in the November issue.*)

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A unique approach in determining tuition charges has been developed by Everett A. McDonald, superintendent of schools, East Hampton, Connecticut. A tuition formula was established in order to charge the tuition towns equitable tuition rates.

The tuition formula works as follows: The sum of the gross budget, as expended during the school year for elementary and secondary education, and a depreciation figure based upon two per cent of the total value of the buildings are added to give a gross expenditure figure. Deducted from the gross expenditures are all of those items that do not concern tuition students or are only for East Hampton's benefit. These items include transportation, bonds, interest, enumeration, and so forth. The difference between the figures is referred to as net expenses. Dividing the net expenses by the average daily membership of either elementary or secondary school students gives the cost per student. Subtracted from this figure is the amount of income per student received. The remainder is the net cost per student.

The tuition rate to be charged is determined at the end of the fiscal year and is then applied to the daily membership of the next school year. A detailed description of the formula may be found in the June, 1950, issue of the *Nation's Schools*, page 33.

How Shall We Classify Educational Research?

LEIGHTON H. JOHNSON
University of California, Berkeley

WHILE writing a study on "Research Procedures Employed in Doctoral Dissertations in Education," considerable difficulty was encountered in dealing with classification of research methods and procedures. Such classifications are often inconsistent in that processes of different categories, which occur at different stages of research, or reflect different aspects of research, are grouped as of equal importance in one list. Disagreement in terminology combined with this inconsistency leads to ambiguity and confusion in discussing and classifying research methodology. Consider Crawford's classification of techniques in educational research: (1)

1. Experimental.
2. Historical.
3. Psychological.
4. Case Study.
5. Survey.
6. Curriculum Making.
7. Job Analysis.
8. Interviews.
9. Questionnaire.
10. Observation.
11. Measurement.
12. Statistical.
13. Tabular and Graphic.
14. Library.

In Crawford's fourteen techniques, it is apparent that the experimental and historical are in a different category from the questionnaire and interview. Experimental and historical imply a fundamental approach or attack on a problem; questionnaire and interview are means of gathering data. A statistical technique is a means of treating data which have been gathered, while a library technique would seem to be involved in all educational research. Thus, one feels an inconsistency in the classification and the question arises: "Why not a consistent classification of research processes which would be generally acceptable?"

Some authorities like Good, Barr, and Scates (2), prefer an attitude where "no distinction is made between such terms as methods, techniques, procedures, and types of research." However, when a distinction is made between *methods* as fundamental approaches on attacks on problems, and

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Since June, 1949, Leighton Johnson has served as assistant in educational administration at the University of California, Berkeley. Previously he had been a teacher and counselor in the Oakland Public Schools. His article is based upon his master's thesis which was completed at the University of California, Berkeley, in 1949. Mr. Johnson has been a member of the summer session staff of the University of New Mexico this year.

procedures as specific ways of collecting and treating data, a logical and consistent scheme of classification can be developed. Recent literature reflects a disposition to accept this distinction between an attitude or approach to a problem and the specific processes of collecting and treating data (3).

Whitney found twenty-two concepts of methods of educational research in a survey of twelve popular sources, and tabulated them to indicate relative frequency (4). The four most frequently occurring concepts imply *method* as a fundamental attack on the problem. These four methods are suggested as basic because of their wide usage, and because they logically divide a category of "approach to the problem":

1. Experimental.
2. Descriptive.
3. Historical.
4. Philosophical.

In classifying procedures, there is less tendency toward agreement. One can begin by distinguishing procedures for the collection of data from procedures for the analysis and treatment of data. In the classifications of these two kinds of procedures which follow, there has not been an attempt to classify each specific procedure available, but rather an effort to group procedures by type or kind:

PROCEDURES EMPLOYED IN THE COLLECTION OF DATA IN EDUCATIONAL RESEARCH

1. REFERENCE TO LITERATURE
2. OBSERVATION:
   - Casual
   - Planned
   - Rating Scales
   - Check Lists
3. INQUIRY:
   - Questionnaires
   - Interviews
   - Conferences
   - Opinion Surveys
4. MEASUREMENT:
   - Standardized Tests
   - Unstandardized Tests
   - Special Apparatus
   - Evaluative Aids
5. DOCUMENTARY INVESTIGATION:
   - Legal Documents
   - Personal Documents
   - Files and Records
6. COMBINATIONS:
   - Case Studies
   - Genetic Studies
   - Job Analyses
   - Surveys

PROCEDURES EMPLOYED IN THE ANALYSIS AND INTERPRETATION OF DATA IN EDUCATIONAL RESEARCH

1. GRAPHIC:
   - Graphs
   - Charts
   - Tables
   - Figures.
2. QUANTITATIVE:
   - Point Measures
   - Variability
   - Reliability
   - Correlation
   - Causation
   - Prediction
3. QUALITATIVE
4. CONSTRUCTIVE:
   - Generalization
   - Reporting
   - New Procedures

In the classifications suggested, procedures are grouped as they most commonly occur and the subdivisions may be regarded as more indicative than all-inclusive. For instance, one will think of other specific processes which could be listed under combinations, but a list aiming at complete inclusion would lead to more debate than agreement.

It is difficult to provide specific subdivisions under qualitative procedures. Judgment and evaluation, which are implied, will figure at all stages of good research. What is suggested here is that in analysis and interpretation of data, as in philosophic research, a qualitative procedure may be most important. It will be recognized that too often the qualitative treatment of data is overlooked in favor of thorough quantitative analysis.

Some readers will immediately miss old friends in the classifications suggested. Where is a "sampling procedure" included? In the suggested classification, sampling is not considered a procedure in itself, but assumed to be a necessary and important aspect of any selection of data by any of the procedures listed. Likewise, one may inquire for a "statistical method." In terms of the suggested scheme, he would expect to use statistics as a tool in the employment of one of the procedures for analyzing and interpreting data, but not as a method or procedure in and of itself.

The classifications of methods and procedures outlined here are presented as suggestions, representing some consideration of an area of educational research which is characterized by disagreement and ambiguity. It seems timely and appropriate that one of the early issues of the *California Journal of Educational Research* should include thinking on the problem. It is hoped that further thought and discussion will be provoked leading to a more generally acceptable classification of research methodology in education.

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3. Good, Carter V., "Methods of Research and Problem Solving in Education," *Journal of Educational Research,* 34:81-90, October, 1946. Whitney, Frederick L., "Methods, Types or Techniques of Educational Research," *School and Society,* 54:282, October 4, 1941.
4. Whitney, Frederick L., *Methods in Educational Research,* New York: Appleton, 1931, p. 72.

Some Teacher Load Problems in California High Schools*

MALCOLM P. MURPHY
Sacramento Senior High School

THE major objective of this survey was to study the problems of teacher load and class size in the senior high schools of California. The chief source of information was a questionnaire which was sent to the chief administrators of all senior high schools in California. The survey sought to determine the size of classes, the direction of extra-curricular activities, methods of equalizing the total load, and policies of extra pay for extra services for the 1947-48 school year.

A total of 319 survey forms were sent to California high schools. Of this number, 195 were sent to schools having less than 500 students, 66 to schools of 500 to 1,000 enrollment, and 58 to schools of over 1,000 enrollment. The number of high schools participating in the survey, according to size classification, were 91, 51, and 89, respectively. The following findings are based upon these schools.

Class Size as a Teacher Load Factor

If the recommendations of principals are to be taken for the correct size of high school classes, then the classes for most subjects in California high schools are about the right size. In the summary of high schools of all sizes, the classes in the departments of art, commercial, foreign language, industrial arts, home economics, music, and science are in practice close to the standard recommended by the administrators. In the department of English, mathematics, social studies, girls' and boys' physical education, the classes are slightly larger than is recommended, but the difference is not a significant one. In the large high schools, those with enrollment of over 1,000 students, the difference between practice and administrator recommendation is more noticeable. In the department of art, the classes are smaller than is recommended; those in mathematics and girls' physical education are about right in size; while in all other departments the classes are slightly larger than is recommended.

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* The reader will be interested to learn that the California State Department of Education, in cooperation with the California Teachers Association, secured detailed information last April regarding teacher load in California. The report of the survey, which will be published early in 1951, will supplement and amplify Dr. Murphy's findings. — *Editor.*

Dr. Malcolm P. Murphy was a teacher, counselor, student body adviser, and vice principal in Sacramento high schools before becoming principal of Sacramento Senior High School in 1943. He began his teaching in a rural school in Illinois, received his A.B. degree at Colorado College, and taught two years in Colorado before coming to California in 1928. His M.A. as well as Ed.D. degree was received at Stanford University. This article is based upon his doctoral dissertation which he completed in June, 1949.

One of the startling features of the class size figures is the range as recommended by principals. A wide range in *practice* is understandable, because of a number of local reasons familiar to every administrator, but the wide range in *recommendations* for "standard" and maximums is not so easily explained. Even in the schools of the same size group, the range of recommended class size varies greatly as shown in the following table.

TABLE I

CLASS SIZES RECOMMENDED BY PRINCIPALS OF LARGE HIGH SCHOOLS

	Recommended Standard		*Recommended Maximum*	
	Range	*Median*	*Range*	*Median*
Art	15-30	25	20-45	30
Home Economics	16-32	20	20-34	25
Social Studies	24-35	30	30-45	35

Other Classroom Load Factors

There are also wide ranges in other factors that are responsible for the classroom phase of teaching load. The daily schedule of classes ranges from 5 to 8 periods a day, and periods vary in length from 40 to 60 minutes. There is nothing that approaches standardization of time spent in classes in California high schools. Although the most common combination is the five-period day with 55-minute periods, it was found in only 24 of the 156 school systems, or 15.4 per cent of the total. The two extremes for total in-class time were 200 and 395 minutes, the upper range almost twice that of the lower. The uses made of the homeroom, activity periods, and study halls are also variable load factors.

Non-classroom Teacher Load Factors

The non-classroom phase of teacher load in California high schools is a heavy factor in the total load of teachers. This consists of the sponsorship of student activities, coaching of athletic teams, counseling, departmental duties, and a variety of administrative assignments. There is no uniform policy in California high schools regarding these factors of teacher load.

Teachers in California high schools have a variety of titles indicating types and degree of responsibility, but there is little in common among schools. One section of the questionnaire secured information on this controversial phase of the teacher load problem. The work done outside the classroom consists of a wide variety of functions, duties, and responsibilities, cmmonly called extra-curricular activities and administrative assignments. The extent of the load of non-classroom work assigned to each teacher depends upon the amount of time given to some person in lieu of classes to handle such duties. Usually the more time allotted to vice principals, deans, department chairmen, and counselors, the less responsibility is assigned to teachers beyond their classroom work.

The work of a teacher is lightened if there is a department chairman who is responsible for inventories, testing, mimeographing, and similar departmental duties. As the schools increase in size, there is a tendency to have organized subject departments and to make some allowance in the teaching schedule of the chairman. Of the 50 medium-sized schools, 11 allow one hour to the English Department chairman; 3 schools allow 2 hours. Boys' physical education chairmen are given one hour in 8 schools, 2 hours in one school, and 3 hours in another. The large high schools usually have departmental organization, but show wide variations of time given to chairmen in lieu of classes.

Counseling

Counseling, as a specialized service, is widely accepted in California high schools. The extent to which it becomes a part of a teacher's load depends upon whether it is handled by principals, deans, and counselors with time set aside for that purpose or is divided among teachers called advisers or homeroom teachers. Sixty-four per cent of the high schools have one or more persons designated as counselors whose schedules range from a full teaching load to full-time counseling. The most significant ratio for comparative purposes is the number of students counseled for each hour of time set aside for this service. In the 180 reporting schools, the time given to counseling ranged from 25 students per hour in four schools to 600 per hour in one school. The median load is from 125 to 149, with 25 per cent of the schools having from 100 to174 students for each hour of counseling.

Coaching

There is an apparent trend toward giving lighter teaching schedules to coaches whose work requires that they put in over 45 to 50 hours a week. In the 180 school systems, a time allowance for coaching after school is made by having the head coach teach only three or four classes; this is evident in the major sports in the following proportions: football, 53, or 29.4 per cent; basketball, 47, or 26.1 per cent; track, 40, or 22.2 per cent; baseball, 42, or 23.3 per cent. In the 39 large schools the head coaches in football do their coaching of varsity teams after school hours in 25, or 64.1 per cent of the cases; 20 of these men teach five regular physical education classes; five teach six classes.

The head coaches of basketball, track, and baseball have similar schedules with some variations. Eleven schools allow the head coach in each of the major sports a period for coaching of his sport, thus requiring him to teach one less class than other teachers. Three large school systems require the head coach to teach only three regular classes. He is permitted to arrive at school at 10:00 or 11:00 a.m. to compensate for the hours given to coaching in the late afternoon and evening. Twelve of the 39 schools allow one period of an instructor's time for minor sports such as swimming, tennis, and golf. Only eight schools of this same group give a man one period for working with the intramural program, thus showing the emphasis given to inter-scholastic sports.

Extra-curricular Responsibilities

This study of practices in California high schools indicates that a lot of lip service is given to the importance of student activities in the school program. As important as it is held to be, the direction, supervision, and development of the program is largely an "after-school" affair. Dramatic productions, dances, game activities aside from coaching, clubs, student body council meetings, yearbooks, and school papers are largely out-of-class activities. In very few cases is one hour of a teacher's time allowed; nor is it considered as important as teaching one class of 30 pupils in a subject field. The small amount of time allowed for vice principals, deans, and others to perform these duties would indicate that in most cases the teachers direct and sponsor them after teaching the usual load of five or six classes.

Only two large high schools have a full-time director of student activities. In the 39 large school systems having senior high schools of over 1,000 enrollment, eight assign one hour in lieu of a class for the direction of student body government or activities; two allow three hours. Sponsors of school publications fare better than most directors of activities. Twenty-seven of the 39 large schools (69.2 per cent) allow one to three hours in lieu of classes for the work of publications. In a few cases an allowance of one free period to a teacher who coaches dramatics, an hour for the comptroller, and an occasional one for cafeteria supervision is about the extent of time in lieu of classes that was found in California high schools.

In another phase of this study it was estimated by principals that 30 per cent of all teachers are giving an average of 5 to 10 hours per week to the student activity program, while about 10 per cent are devoting 10 to 15 hours or more. On the other hand, 75 per cent of the principals indicated that 90 to 100 hours a semester spent as director of student activities are the equivalent of teaching one class, and 73 per cent of them said that a senior high school of 1,000 to 1,500 students should have a director giving most or all of this time to the non-classroom activity program.

In summary of the non-classroom phase of teacher load, it is evident that there are no uniform policies, no recognized standards, and no defined methods of measurement. Whether an hour a day given by an athletic coach, a drama teacher, a department chairman, or a teacher sponsoring an organization or working on a curriculum committee, is equivalent one with the other is a matter of conjecture. Magazine articles, discussion at conferences, and local studies of teacher load, as well as remarks written in on the questionnaire used for this study, indicate that this phase of the problem is responsible for a large part of the overload where it exists.

Methods of Evaluating and Equating Teacher Loads

There is a need for criteria for the evaluation of all phases of teacher load and for standards that recognize the factors of ability, experience, responsibility, and unavoidable overload in terms of equitable compensation.

It is evident that there is no consistent philosophy held by California secondary school administrators to guide their direction of policies and practices of administration of their most important asset for effective education — the teachers themselves. It has been pointed out that principals of schools of similar size for the same department have and recommend classes that range from 20 to 45 and 25 to 45 students. Class schedules per teacher range from 200 minutes to 395 minutes. The median or mode is not necessarily the correct standard. Each school needs to study its own problem for the curriculum emphasis, the community demands, and the extent of the extra-curricular program as it affects each situation. Each school should have its own method for equalizing and evaluating its non-classroom teacher load. Some system should be worked out in each school that will regulate the total load, keeping it within the limits of 45 to 50 hours a week. Without some type of control the load becomes too heavy for the physical and mental well-being of many teachers.

There is not enough attention given by administrators, school boards, and others interested in the teacher personnel problem to the factors that contribute to the teacher's physical and mental well-being. Overwork causes frustrated and unhappy teachers. Strain, worry, and ill health develop from having more to do than can be done well. The conscientious teacher who seeks out source materials and visual aid materials and attends committee meetings and workshops finds that he hasn't time after school or during the evening for relaxation and normal living. The cumulation of duties, assignments, and responsibilities of one type or another becomes a serious factor contributing to physical and mental ill health. Regardless of the fact that it may not seem professional to measure a teacher's load in hours per week or per day, a teacher, as any other worker, must have rest, relaxation, and leisure. Each school system might improve the effectiveness of teaching considerably by giving more attention to the personal factors that affect teachers themselves.

In many high schools the teacher's student load is too heavy for effective teaching. Individual attention to each student is limited in classes of thirty or more. The philosophy of modern secondary education which attempts to meet the vocational, cultural, and civic needs of all young people requires extensive preparation, differentiated materials, and study and research by the teacher. This phase of teaching is often overlooked in measuring the teacher's time. Other factors which make teaching difficult with many of the high school youth of today are the instability of many homes, the juvenile problem outside the school, and the requirement that all youth attend school until 18 years of age or until high school graduation, and social influences in general.

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Commonsense and research tell us that, generally speaking, present-day schools accomplish far more than those of the past. Today's curriculums are broader in scope, richer in detail, and more closely attuned to everyday life. Some of the college subjects of 1900 are today successfully taught in the high schools, and part of the older high school course has moved down into the lower grades. Today's pupil is superior to his earlier counterpart in his range of interests, in his ability to handle thought questions, and in his capacity to apply knowledge and skills. He does less well than his academic ancestor on memory tests of isolated facts only because both school and society have less use for static encyclopedic knowledge. (*Adapted from article in* NEA Journal, *May, 1950, page 367.*)

Difficulty Level of United Nations Filmstrip Scripts

JOHN U. MICHAELIS
University of California, Berkeley

A CRITICISM sometimes made of filmstrips is that the reading material contained in them, or in scripts which accompany them, is too difficult for the pupils with whom they are used. This problem is especially acute at the present time in junior and senior high schools where a wide range of reading ability exists. For example, in a tenth grade class recently checked by the writer, the range of reading ability varied from fifth grade to college level. Another reason for reading difficulties is the fact that filmstrips are sometimes selected rather hurriedly and used without a consideration of the terms and concepts contained in the scripts which accompany them.

The problem investigated in this study is: On what level of reading difficulty are the scripts written which accompany selected filmstrips on the United Nations? Filmstrips on the U.N. were selected because the writer has encountered their use in grades VII through XII. In observing their use and in discussing them with teachers, it appeared that some pupils were having difficulty with comprehension of the script.

The question immediately arises as to whether or not the checking of a script which is read orally is a fair check of level of difficulty. According to McKee[1] " . . . beyond the third grade level, the pupil who does not understand a statement which he attempts to read does not understand that statement when it is read or spoken to him."

The first step in this study was to select a formula for use in assessing reading difficulty. After a preliminary tryout of five formulas on United Nations materials,[2] the Dale-Chall formula was selected for use. This formula is easy to apply and gives grade placement information over a wide range from grade IV to XVI.

The next step was to appraise five filmstrip scripts on the United Nations. The findings are presented below in Table I:

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[1] McKee, Paul, *The Teaching of Reading*, Boston: Houghton-Mifflin Company, 1948, p. 11. (McKee cites several studies.)

[2] See bibliography.

Dr. John U. Michaelis is associate professor of education and director of supervised teaching at the University of California, Berkeley. He obtained his Ph.D. at the University of Maryland in 1943, and has taught at Maryland and at Fresno State College (California). Dr. Michaelis has been in his present position for the past three years. He is the author of a new book, "Social Studies for Children in a Democracy," to be published by Prentice-Hall Company.

TABLE I

AVERAGE RAW SCORE AND GRADE PLACEMENT OF FILMSTRIP SCRIPTS BY THE DALE-CHALL FORMULA

	Dale-Chall Ratings	
Filmstrip	*Average Raw Score*	*Grade Placement*
Design for World Living	9.0199	13 - 15
Pattern for World Prosperity	8.1169	11 - 12
A World of Law and Order	8.0179	11 - 12
Working Together for Peace	8.0001	11 - 12
Better World Neighbors	7.4448	9 - 10

All of the scripts analyzed in this study are written on an advanced reading level. Because of the concepts involved in the material presented, it is doubtful if they can or should be "written down" to elementary levels. Rather, the teachers who use them should give attention to the development of the concepts involved in them prior to their utilization. Attention should also be given to the grade levels in which the materials are used. The present practice of using United Nations materials anywhere from grade VII through grade XII is questionable.

A second implication of this study has to do with the appraisal of filmstrips. Is it sound procedure to check level of reading difficulty prior to use? Should audio-visual departments provide such a service for the teacher? In the judgment of the writer, this should be done in connection with new filmstrips of questionable level of difficulty. By taking a sampling of new filmstrips and by securing the cooperation of interested teachers and committees, such a task need not become burdensome.

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Free Teaching Aids in California Schools

FRANKLIN K. PATTERSON
Pasadena City Schools

EVERY administrator is aware of the large volume of teaching aids made available at no or nominal cost to public education by a variety of private organizations. To many teachers the abundance of such instructional materials — richly-produced films, pamphlets, slides, wall charts, etc. — has seemed like manna from heaven. Teachers and administrators who felt a great need for materials beyond those furnished in the regular curriculum frequently were impressed favorably also by the prestige, and predisposed to the objectives of the main sources of free teaching materials. The result has been wide and fairly enthusiastic adoption of such aids, particularly those sponsored by large business and manufacturing firms, or by associations representing such enterprises. In recent times a more general consciousness of social issues involved in the use of sponsored aids has developed, and a sharpening of policy in this regard is apparent in literature on the subject and in typical comments of working administrators.

That educators have drawn heavily upon such materials is common knowledge. A glance through the literature on teaching aids in the last ten years will show how much effort has gone into cataloging and making easily available to teachers appropriate check lists of free and inexpensive materials.(1) That the place of commercially-sponsored aids in the schools is dominant over other types of free materials is generally agreed. In a survey of 500 administrators in 1946 it was reported that "not a single respondent fails to use some of these outside (commercial) aids."(2)

Nor can it be questioned that private organizations, principally commercial, have gone to great expense to put their materials into school hands. A recent article lists fifty places to write to for instructional aids and it is interesting to note that almost all of these are trade associations like the Council on Candy of the National Confectioner's Association, and the American Iron and Steel Institute.(3) So complex is the offering of films by large American business to the public schools that a joint distributing service has been set up on a nation-wide scale with libraries and

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Franklin K. Patterson is assistant curriculum coordinator in the Pasadena City Schools. His professional experience includes junior high school core work, adult education, and junior college social studies teacher. During World War II, he was engaged in educational work with U.S.A.A.F. This is the first of a series of two articles in which Mr. Patterson describes some of the more pertinent phases of his survey and evaluation of free teaching aids. The second article will appear in the November 1950 issue.

distribution centers in twenty-six cities from Boston to Seattle.(4) Production and distribution of pamphlets, comic books, filmstrips, or other aids has become a regular part of almost every large corporation's functions.(5) Business and manufacturing elements have entered the field on a scale that justifies the consideration of the problem along with others in the area of mass media. One great electrical firm, for example, has distributed more than 3,000,000 copies of one comic book to the public schools of America and envisions a more extensive distribution in the future. The big disseminators of educational comics include General Electric, Standard Oil of New Jersey, Ford Motor Company, A & P chain stores, and Thom McCan Shoe Company.(6)

Indeed, practically every type of organization has entered the field of supplying the schools with the things the schools may fail to provide for themselves. A list of non-commercial sponsors ranges from the DAR to the CIO, and includes service clubs, church groups, and fraternal societies. That most of these groups have "axes to grind" cannot be gainsaid, just as commercial sponsors have business considerations in view when they spend money on teaching materials. Motives of sponsors, in general, vary from a rather crude desire to propagandize a specific point of view in the public schools to a desire to establish a favorable mass social connotation for certain ideas and names.

The educator who is sensitive to the problems involved in this situation often feels caught by a dilemma whose two horns are: (a) a very real need for additional materials in the schools, and (b) recognition of the dangers implicit in using materials whose basic design is to engineer consent in the minds of tomorrow's citizens for a particular idea, concept, or product. Recent literature has reflected awareness of this dilemma and a desire to solve it in a way that will permit valuable aids to be used and yet avoid indoctrination of students by outside forces.[1]

The California Questionnaire:

Results and Interpretation

Consciousness of the problems arising from the use of sponsored aids, and a desire to become better acquainted with current administrative practices in their regard, led the writer to the development of a questionnaire addressed to sixty city school departments in California. Entitled "Questionnaire Regarding Use of Donated Teaching Aids," this inquiry defined "use" as "employment in the classroom with the knowledge and sanction of the superintendent or his appointed representative in charge of curriculum." A definition of "donated teaching aids" was established as including "books, pamphlets, comic books, maps, charts, films, filmstrips, or other materials made available to schools on a free or nominal basis by private organizations, including fraternal societies, religious groups, labor unions, business associations, manufacturing firms, clubs, etc."

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[1] Perhaps the best recent discussion of administrative policy can be found in "Commercial Supplementary Teaching Materials," a Consumer Education Study of the National Association of Secondary School Principals, published in 1944, condensed in *Education Digest*, January, 1945, pp. 40-43.

The questionnaire was organized with the intent of determining several aspects of administrative policy and practice in California city schools:

a. The extent and character of a conscious policy on sponsored aids
b. Type of aids used
c. The character of procedures used for evaluating and adopting such aids
d. The degree of advertising or propaganda commonly allowed
e. The sources from which aids are obtained.

Questionnaires were sent to the sixty city superintendents listed in the *California School Directory*, with jurisdictions that varied widely in school population and to a certain degree in grade range. In all, forty-one usable replies were secured, a return of 68.3 per cent. The forty-one returns were prepared carefully and with generous comment by those answering. The main areas of information obtained have been summarized in the following tables and discussion.

Policies Governing the Use of Free Materials

Only a handful of systems evidenced a clear policy which stands as a publicly-stated position, developed as a part of the official administrative program. Of these, one of the most explicit in recognizing administrative responsibilities is the "Statement of Policy on Use of Sponsored Audio-Visual Materials, San Jose Unified School District," published May 13, 1948. This statement, approving the use of such aids within specific limitations, establishes definite procedures for evaluation through representative committees, and tangible criteria to be applied in the selection of such materials. One criterion established in the statement illustrates the direct approach taken:

> The materials must be free of advertising which employs propaganda for the particular trade brand or specific organization or institution sponsoring such materials. The name of the sponsor appearing in the film on trucks, factory fronts and otherwise are (Sic) not considered objectionable advertising. (7)

In most cases, respondents were somewhat less definite in the statement of their policies. All implied, however, that donated materials were used if their content contributed to the school's program, and if advertising or propaganda contained in such materials was "minimal," in "good taste," and not "contrary to our way of life."

Use of Donated Teaching Aids

A second purpose of the study was to secure information concerning the kinds of sponsored aids most commonly found in use. The following table summarizes the evidence in this regard.

TABLE I

PERCENTAGE OF RESPONDENT CALIFORNIA CITY SCHOOL DEPARTMENTS USING VARIOUS TYPES OF DONATED TEACHING AIDS

Types of Aids	*Percentage of Reporting Systems Indicating Use of Type*
Pamphlets	92.6
Filmstrips	80.4
Films	78.0
Slides	39.0
Books	34.1
Other Types	21.9*
Comic Books	17.0

* Other teaching aids reported in use include pictures, exhibits, dioramas, maps, newspapers, transcriptions, prints, posters.

It is interesting to compare these figures on actual use with the preference statistics produced by Dameron in 1944. In his ranking of business-sponsored educational materials according to teachers' preference, pamphlets likewise assumed top position, with films in fourth and slides in sixth place.(5) It is probable that the percentages shown in the present table reflect the influence of two major factors: (a) the great volume of sponsored pamphlet and booklet output, and (b) the degree of availability of visual education equipment and skill in responding schools. In view of the varying, yet fundamentally unanimous, endorsement of sponsored aids shown in the survey, it would be difficult otherwise to explain the fact that only 7.4 per cent of respondents report no use of pamphlets, while 22 per cent report no use of films.

Use of sponsored comic books by 17 per cent of responding systems also is worth noting. Large-scale impingement of this medium on the private lives of public school students is now a matter of ten years' history. The current appearance of sponsored comic books in the curriculum should give rise to considerable speculation. Undeniably, the comic book has great and almost drug-like appeal to the young and, unlike the film, requires no special equipment or skill for consumption. Will present policy lead to vastly increased use of this type of sponsored aid in the future? If so, what will the effect be upon the curriculum, on methods, and on the use of regular aids?

(Bibliography to appear with concluding installment in November issue.)

A Study of Assessment Practices in California as They Affect the Equalization Program of Education

HARRY M. HOWELL
Los Angeles City Schools

THE purposes of this study are threefold. The first purpose is to investigate assessment practices in California and to determine if the relative taxpaying abilities of the various school districts in California, as they operate under a formula for equalization, are on a sound and equitable basis so that districts will neither profit when assessment ratios are low nor be penalized when assesment ratios are high. Secondly, in order to determine whether or not assessed valuations constitute a true measure of local ability, an investigation will also be necessary with regard to other criteria on a county basis, among these factors being total income of civilian residents, sales and use tax collections, and in lieu tax collections on motor vehicles. Part three of the problem is a study of the practices pertaining to equalization of assessments in the several states of the nation.

In order to ascertain whether assessments as they are now determined in all the counties of the State are uniform, data were secured from 35 counties with respect to gross assessed valuations and sales information for selected properties covering a nine-year period from 1940-41 to 1948-49 for each piece of property. Care was exercised to select properties which would be representative of all areas of the county or school district and which had had no additions or deductions in the nine-year period. In order to have all types of property represented in the study, both urban and rural properties were selected. To implement the data which related market value (sales price) to assessed value, appraisals by professional appraisers of a number of properties throughout the State were related to assessed value of property and compared to the assessed value and actual sales price.

For part two of the problem, raw data for assessed valuations, total income of civilian residents, sales and use tax collections, and in lieu tax collections on motor vehicles were collected on a county basis. These data were treated statistically and related as separate measures of the ability of school districts to support a foundation program of public education.

Dr. Harry M. Howell is Associate Superintendent of the Los Angeles City School District. His work in the Budget Division of the Los Angeles school system is well known to California school people. His professional experience started in the Los Angeles schools in 1924 as a high school commercial teacher. He has been in the Budget Division since 1934. The present article is a digest of Dr. Howell's dissertation which was completed at the University of Southern California in March, 1950. He was a member of the State Advisory Council on Educational Research, and the Editorial Board of the California Journal of Educational Research *until last May.*

To secure data on nationwide practices, a questionnaire was sent to State Superintendents of Public Instruction. The Superintendents were asked if assessed valuations were used in measuring local ability to finance education and whether or not assessed valuations were equalized in their several states.

Findings

Assessed valuations from 1940 to 1948 lagged far behind other indexes of the economy. While the cost-of-living index was increasing 69 per cent, the median increase in the assessed valuation of properties sampled showed an increase of only 14.04 per cent. This compared to an actual increase of 14.36 per cent in revaluation of properties for assessment purposes. While the income of civilian residents was increasing 200.58 per cent, sales and use tax collections, 202.03 per cent, and in lieu tax collections on motor vehicles, 160.30 per cent, the total assessed valuations of the State, including new construction, increased only 54.02 per cent. These comparative data conclusively revealed that the assessed valuations of property did not adequately reflect the presence of increased wealth in the State.

The ratio of assessed value to market value for properties sold in 1940-41 was 38.36 per cent. The ratio in 1948-49 was only 19.72 per cent, indicating again that assessed values did not keep abreast of the economic trends. The appraisals by expert appraisers showed a median ratio of assessed value to appraised value of 18.43 per cent, and it is significant to note that this ratio is highly comparable to the median ratio of assessed value to market value for actual sales.

If the criteria of income of civilian residents and sales and use tax collections had been used instead of assessed valuations to measure the ability of the recipient school district to finance a foundation program of education, the equalization aid would have been apportioned differently. As was to be expected by applying assessed values as they existed, there was rather a high correlation, .75, in rankings of ability to finance a foundation program and the amount of equalization aid apportioned. However, using income of civilian residents and sales and use tax collections, there were found to be correlations of .56 and .41, respectively, in rankings of ability to finance a foundation program and the amount of equalization aid apportioned. The present method of distributing total State aid is inequitable as revealed in the data which produced extremely low correlations in rankings of ability to finance a foundation program and the amount of total State aid apportioned. The correlations for the indexes of assessed valuations, income of civilian residents, and sales and use tax collections were: .22, .28, and .34, respectively.

Further evidence that the total State aid is not apportioned in relation to need was revealed in an analysis of the tax rates of the recipient school districts. The county which was granted the highest amount of State aid had the lowest median school tax rates. The 14 counties with the lowest median tax rates received $185.25 per unit of average daily attendance in State aid, but the 14 counties with the highest median tax rates received only $127.15 per unit of average daily attendance in total State aid.

On a nationwide course, a large majority of the states use the proceeds of a local tax on property as a qualifying factor for equalization aid, but very few states have set up adequate centralized bodies to perform the function of equalizing assessments.

Conclusions and Recommendations

A basic principle in measuring equalization aid to school districts should provide that equalization grants be inversely related to the ability of the school district to pay for the service. Assessed valuations as a criterion to measure the ability of a school district to support a foundation program of education will produce a fairly equitable distribution of equalization aid. But if the apportionment of an equalization fund is to be based upon the assessed value of property per unit of average daily attendance in the various school districts without intercounty equalization of assessments, the county assessor will to a large extent determine the amount of equalization aid for public education his county will receive from the State. Obviously, this would place a premium on under-assessments. It thus becomes very important that the 58 counties in California be equalized in their assessments. In the interest of equity for all taxpayers, property within each of the school districts should be equalized at a designated percentage of true value. This can best be achieved by State supervision.

In view of the evidence presented, it is concluded that property in all areas of the State is not overtaxed on the basis of a ratio of 50 per cent of true value. However, it is apparent from the evidence that many property owners are being inequitably treated since there is such a wide variation in the assessment ratios on property within the State. Since the same mandatory tax rates are used in determining the district's contributions to the foundation programs, it is quite obvious that the qualifying tax rates and the equitable assessment of property are closely related. The data in the investigation conclusively authenticate the fact that, due to a lack of intercounty equalization of assessments, 21 of the 35 counties sampled showed no median increase in assessed valuations in 1947-48 as compared to 1946-47, while the remaining 14 counties made general increases in assessments.

It was concluded that the use of assessed valuations as the sole criterion for measuring local ability to finance a foundation program of education was inequitable because property in the various school districts of the State is not assessed at the same proportion of market value. Consequently there is need to establish a *variable ratio method of equalization* which involves the finding of the average ratio of assessed value to market value in each county and then the adjustment of assessed values and maximum school tax rates in each county to the finding. Such a procedure would not change local assessment rolls. The State would merely adjust to local practices. To establish the procedure, some State agency, preferably the State Board of Equalization, would annually make a survey in each county to determine the relationship between the total value of land, improvements, and tangible personal property and the total market value thereof. Since it would be an almost insurmountable task, as well as an infringement upon local governmental rights, to change all assessments once they had ben made by the county assessors, upon completion of its statewide survey the State agency should establish ratios of assessed value to market value for each county as between counties and the State as a whole. If the ratio of assessed value to market value in any county differs from the statewide ratio as fixed by the State agency, the value of all land, improvements, and tangible personal property should be adjusted before apportionments of equalization aid are made to school districts.

In order to treat all taxpayers of the State on an equal basis, the maximum tax rates should be subject to adjustment upward or downward in the year in which an adjustment in assessed valuations is necessary. The tax rate adjustment should be the percentage the adjusted assessed valuation of the property in the school district bears to the assessed valuation prior to the adjustment; thus the adjusted tax rate would be productive of the same tax burden in terms of market value of the property taxed as though the property in the district were assessed at the statewide ratio.

If this recommendation should become practice, the equity of all ad valorem taxpayers would be served in that the assessed value of all assessable property in California would be equalized for school support, and the adjustment of maximum tax rates would promote equality in the tax burden.

Long Term Prediction of Reading Success

MARGARET MOREAU
University of California, Berkeley

SINCE its introduction twenty-five years ago, the term "reading readiness" usually has been applied only to readiness for first grade or primary reading. Practically all measures of reading readiness have been validated against the criterion of first grade reading success, which is, of course, what they were developed to predict. This study was undertaken at the suggestion of the director of the Bureau of Research in the San Francisco school system to determine the degree to which first grade tests of intelligence and reading readiness predict reading achievement over a longer period, such as the first five years of elementary school.

Previous Researches

Many studies made during the thirties investigated the importance of factors supposed to comprise or contribute to readiness for formal reading instruction. Most of them found mental age as determined by group tests of intelligence to be the best single predictor, giving coefficients of correlation from .40 to .70 with reading achievement (1, 2, 3). Because of the limited range of tasks which children just entering school can perform, most group tests for this level have common elements. For example, marking pictures in response to oral directions, which is a good measure of reading readiness (4), is also used to test vocabulary or other factors in intelligence tests. Actually, the overlapping of functions tested and items used may make the distinction between some tests of intelligence and reading readiness somewhat arbitrary (5, 6).

The most comprehensive study of reading readiness, by Gates and his co-workers at Teachers College, Columbia University, confirmed the predictive value of such factors as various types of phonetic discrimination, knowledge of letter names, forms and sounds, and the ability to recognize similarities and differences between printed words and letters (4). The widespread belief that there is a minimum chronological or mental age necessary for reading seems to have very little basis in fact (7).

Teaching methods will determine which skills the children will use most in learning to read and so should determine which type of readiness

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Mrs. Margaret Moreau is a high school teacher, having taught in Ukiah, San Francisco, and Monterey. Her special field of interest is remedial education. At present she is a graduate student at the University of California, Berkeley. Her article is based upon her Master's thesis which was completed last January.

test should be used in a particular school system. There is agreement that recognition of and adjustment to individual differences is most important in the teaching of reading, and that reading readiness can be developed by providing the experiences and teaching the skills that contribute to it.

Methods and Data

The reading achievement of 275 pupils in the low sixth grade, as measured by the California Basic Skills Test in September 1948, was correlated with their scores on the Lee-Clark Reading Readiness Test and the Pintner-Cunningham Primary Test of Mental Ability, which they had taken during the first month of the first grade.

This sample, almost one tenth of the low sixth grade in San Francisco public schools, was selected from ten schools in widely varying neighborhoods so as to include almost every nationality and socio-economic group in the city. Their reading achievement was matched, in range, variability and mean, with that of the entire low sixth grade. The range of distribution of their mental ages, although not held constant, corresponded very closely to that of the larger group.

Of the group studied, 17 per cent had been retarded one or more semesters and three per cent had been accelerated one semester. Eighty-five per cent of the sample had attended kindergarten.[1]

Test Scores

The generally accepted linguistic superiority of girls was found in this study. Sex differences in first grade reading readiness scores, mental ages and I.Q.'s were found to be statistically significant at the five per cent level. The slight superiority of girls in sixth grade reading achievement was not statistically significant, but it was consistent with the earlier difference. There were no sex differences in variability.

The first grade test results of the sixth graders studied were as follows:

	Range	*Mean*	*S.D.*
Reading readiness scores	0—62*	35.3	13.3
Mental ages	4.0—9.6	6.1	1.3
Intelligence quotients	57—153	100.2	16.2

* Entire possible range.

Legal minimum age requirements and promotional policies limit the age range in each grade. All but 14 pupils were less than a year above the age of five-years-six-months required for first grade entrance. At the beginning of the sixth grade, only 20 of the group were above age twelve and none below ten and a half years.

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[1] Data provided by Bureau of Research, San Francisco Unified School District.

Validity of Predictions

Coefficients of correlation between first grade predictive data and sixth grade reading achievement computed for the entire sample and for boys and girls separately were as follows:

	Boys	*Girls*	*Total Sample*
	r	*r*	*r*
Reading readiness scores	.65	.46	.46
Mental ages	.49	.45	.53
Intelligence quotient	.42	.32	.39

All the correlations obtained show definitely that five-year predictions of reading achievement based on first grade tests of intelligence and reading readiness are almost as reliable as one-year predictions of reading achievement based on the same tests. Neither is reliable enough for individual prediction, and some pupils who scored very low on one or both of the first grade tests attained or surpassed sixth grade norms. The success of these pupils with low readiness or mental scores may be attributable to adaptation of the primary reading program to their capacities or individual attention on the basis of these scores, which is the purpose of the tests.

The boys showed a marked bi-modality of reading readiness scores which gave a spuriously high correlation of this factor with their reading achievement, as can be seen by comparing it with the coefficient found for the girls and the entire group.

Lee-Clark readiness test scores yielded an *r* of only .56 with the Pintner-Cunningham mental ages. Hence it can be concluded that, although these tests do overlap somewhat, they measure different enough functions to justify continued use of both tests. If only one test can be given, a mental test seems to be as adequate as any single measure of reading readiness. Both types of tests can be used profitably by first grade teachers as a guide to the level and organization of first grade reading instruction. They are excellent screening instruments; pupils scoring low on either or both should be given individual diagnosis and attention.

It was observed that the 20 Chinese pupils in the study were all quite close to the average of the sample and the entire sixth grade in reading achievement. Their first grade scores, however, varied widely, a few being extremely high and a few rather low. Like other bilingual children who learn their English in school, some probably scored low because of a language handicap. Some Chinese children, however, begin Chinese language school at age four or five, an experience which might raise their aptitude for paper-and-pencil tests but not their later achievement. At any rate, this discrepancy might provide a basis for further investigation.

Conclusions

1. Scores on the Lee-Clark test of reading readiness and the Pintner-Cunningham test of intelligence given in the first grade predict reading achievement in the first five grades almost as reliably as in the first grade.

2. The intercorrelation between these two tests indicates slight overlapping, but considerable difference between the functions which they measure.

3. Girls were found to be slightly superior to boys in sixth grade reading achievement. Their superiority on first grade tests of intelligence and reading readiness was large enough to be statistically significant.

4. Mental age seems to be a better predictor of reading achievement than I.Q., but it exceeds only slightly the Lee-Clark reading readiness score.

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"Our school population has expanded because there are more people and more children; because of shifting population; because more children stay in school longer; because an increasingly technical civilization calls for a lengthened school experience in developing technical skills; because a higher average family income enables parents to provide for their children a longer period of education. These conditions are here to stay. The overcrowding of our schools cannot be explained away as a result of causes that are temporary in effect." (*Excerpt from* Our School Population, *page 8. Annual Report for 1949-50 of Dr. Willard E. Givens, executive secretary, National Education Association.*)

The Elementary School Counselor in California

RUTH A. MARTINSON
University Elementary School
University of California at Los Angeles

THE present study was developed because of the need for investigating the training, qualifications, and training needs of school personnel who assume responsibility for the adjustment of children during their elementary school years. It was felt that too often guidance responsibilities at the elementary level were left to over-worked teachers and administrators, and that special facilities frequently were not provided at all. It was felt, too, that an analysis of the existing level of training and a survey of the duties and training needs might prove of value in extending college and university offerings in guidance at the elementary school level.

In order to initiate the study, a letter of inquiry was sent to city, county, and rural administrators and guidance directors throughout California. In the letter they were asked to list the names of counselors within their elementary school districts. *Counselor* was defined as one who is responsible for helping teachers solve their own pupil-personnel problems, who assists persons in the solution of social or educational problems, and/or who coordinates and furnishes leadership in the personnel work of a school. It was stipulated that the counselor should be one who had direct contact with elementary school children.

Survey Technique

Of the 247 administrators and guidance directors who replied to the letter, 190 stated that no such persons were employed within their schools. From the responses of the 57 who did employ counselors, 182 names were listed.

During the month of February, 1948, an eight-page questionnaire was sent to these persons. Fifteen responded by saying that they had been erroneously classified as counselors, and 100 sent completed responses. For purposes of comparison, three groups were formed. Group I included 45 counselors in city districts above 30,000 population; Group II was composed of 36 counselors in districts below 30,000; while Group III was made up of 19 county school counselors who had direct guidance contacts with elementary school children. All of the district counselors were selected from districts with total populations under one million.

Dr. Ruth A. Martinson is a counselor in the University Elementary School, University of California at Los Angeles. From 1947-49 she served as coordinator of research and guidance for the Los Angeles County Schools. Earlier she had taught in the elementary and junior high schools in the State of Washington. Dr. Martinson's article is a digest of her doctoral dissertation which was completed at U.C.L.A. in June 1949.

Analysis of Responses

The academic preparation of the California counselors showed a wide divergence in terms of both time and amount. The amount of training ranged from two to eleven years, with a mean of 5.2 years for the total group. Group III counselors reported the greatest amount of training, with a mean of 6.7 years, while Group I counselors listed an average of 5.1 years, and those in Group II, 4.7 years. Of the total group, 87 per cent held the Bachelor's degree, 39 per cent, the Master's degree, and 5 per cent, the Doctor's degree. The variation in training is shown again by the fact that 68.4 per cent of Group III had earned the Master's degree, while 40 per cent of the Group I counselors and 22.2 per cent of those in Group II held the same degree. Similarly, four out of five of the Doctor's degrees were held by Group III counselors.

Reactions of the counselors to specific phases of their academic training indicated that certain courses were of great value to them in their work. The following courses were approved by two thirds or more of the total group as having much value: Growth and development of the elementary school child, principals of guidance, the use of standardized group tests, educational psychology, and the use of individual intelligence tests. Courses taken by fewer counselors, but approved by more than two thirds of those who had taken them, include growth and development of the kindergarten-nursery school child, guidance practices in the elementary school, conditions of learning, education of exceptional children, remedial techniques, the use of projective techniques, child welfare (in social case work school), clinical psychology, abnormal psychology, social case work, and psychology of adjustment.

Courses listed by more than two thirds of the counselors who had taken them, as having some or little value to them as counselors, include school law, elementary school administration, history of education, experimental psychology, physiological psychology, biology, and research techniques.

The need for practical training was stressed by many persons. Forty-eight per cent of the total group felt that psychological clinic experience would be of benefit to counselor trainees. Seventy-seven per cent felt that supervised field work would promote the learning of correct techniques under the guidance of experts, as well as to foster confidence and develope insight into the total school situation and their possible contribution to it.

A great majority of the counselors advocated teaching as a basis for public school counseling. Ninety of 94 counselors who had taught stated that teaching had been of value to them as counselors as an aid to understanding children, as well as to knowing the school situation and understanding the problems of teachers.

Eighty-five per cent of the counselors felt that teaching is not only desirable, but essential in counselor training. Many of them stated that a counselor who has taught will not be inclined to make impractical recommendations, and that his recommendations will be accepted more readily than those of a non-educator. Several mentioned the fact that counselors often are called upon to teach, while others felt that knowledge of the total program is essential, since often pupil difficulties emanate from faulty classroom procedures. The 13 persons who commented negatively regarding the essential nature of teaching qualified their negative responses in all but two instances by stating that teaching is desirable, helpful, or valuable. The two unqualified negative comments were made by persons who had not taught.

The work experiences of California counselors were not confined to teaching and counseling. Two hundred other occupations were listed in addition to these two. The types of work most frequently named as having value to counselors include work in industry or unskilled labor, supervision of youth groups, clinic work, and social case work.

Duties and Responsibilities

Duties performed by the counselors were numerous and varied. Thirty-four per cent of the group were actively engaged in teaching at the time of the study in classes from kindergarten to university level. While a majority reported responsibilities connected with the testing program and records, only 36 per cent stated that they worked with teachers in the interpretation of data. Although only 20 per cent were officially designated as attendance officers, 32 per cent investigated the causes of absences.

The entire group listed the study of individual problems as a responsibility. The counselors listed a total of 319 problems which were most commonly referred to them by teachers. Problems which involve social relationships accounted for 43 per cent of the total; 33.9 per cent of the problems were academic in nature, with failure to accomplish named as the single problem which was most frequently mentioned. In general, problems of aggression and failure to conform were of the greatest concern to teachers. Problems which involved withdrawal, daydreaming, insecurity, apathy and inertia accounted for only 16 per cent of the total number.

Forty different administrative duties were listed by the total group as responsibilities in addition to counseling and teaching. The mean numbered duties was 4.5 per person, with two persons listing more than 10. Administrative assignments reported included such tasks as cafeteria management, assembly and student body activities, supervision of book orders, and audio-visual coordination.

Services and Training

Many of the California counselors had spent long periods of time in their present communities. In many instances they had gone into counseling after years of teaching experience. Although the mean year for the initial counseling experience was 1942, 29 counselors of a total of 81 in the city and small district groups had worked in their present communities for 10 years or more. The average length of service to the present community was nine years.

Fifty per cent of the counselors spent three fourths or more of their time in counseling. Fourteen per cent spent less than half of their time as counselors.

Comments made by the counselors regarding their needs for further training emphasized the importance of practical experience. Interest frequently was expressed in supervised field work and case work, in the study of projective techniques, and in clinic experiences. The changes and extensions of present college and university offerings most often suggested included clinic work, supervised field work, and courses in *elementary* school guidance.

Recommendations

The recommendations made by the counselors through their questionnaire responses and through personal comments indicate that certain specific improvements may be made in both counselor training programs and in general guidance practices which now exist. Some general suggestions are listed briefly below:

1. Potential counselors should be encouraged during their undergraduate teacher training to incorporate within the training such courses as those recommended by the present group.
2. Graduate training for counselors should follow a period of successful teaching, and should include a definite program geared to elementary school needs.
3. College and university recognition should be given to the need for training elementary school guidance personnel.
4. Guidance services should be extended to include every teacher and child within the elementary school.
5. A salary differential between the amounts paid to teachers and counselors sufficient to attract and hold highly qualified persons
7. To meet the training needs of counselors in sparsely populated areas, cooperative planning by colleges, universities, and guidance associations seems essential.

What Kind of Audio-Visual Supervision Do Teachers Prefer?

WILLIAM H. ALLEN
University of California, Los Angeles

TODAY, administrators are looking for ways to help the teacher use audio-visual materials in the classroom. One approach to the problem is to discover which supervisory techniques are most preferred by teachers. If these preferences can be determined, a wise administrator can use them as a part of his in-service education program.

In order to find out which audio-visual supervisory techniques teachers preferred, a questionnaire survey was made in the San Bernardino (California) County Schools. The survey had a threefold purpose: (1) to find out which supervisory activities and techniques should receive emphasis in the supervisory program; (2) to find out whether or not teachers in different geographical regions of the area being surveyed had different preferences; and (3) to find out whether or not teachers instructing on different grade levels in the schools being surveyed had different preferences.

A questionnaire was distributed to all 392 teachers under instructional supervision by the San Bernardino County School Office. These teachers were distributed among 63 elementary schools, four junior high schools, and three high schools. A return of 278 questionnaires was received, or 70.9 per cent of the total number distributed.

The teachers were asked to check on a four-point scale of value how each of 57 listed supervisory activities (75 were listed for high school teachers) might help them improve their teaching with audio-visual materials.

Summary of the Findings

The teachers answering the questionnaire found the following supervisory activities to be of *most* value (the percentage of teachers who listed the activity of "most" value is found in the parenthesis):

1. *Publications*, such as lists of free and inexpensive materials (95%), lists of available audio-visual materials (93%), bulletins of new

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William H. Allen is instructor and coordinator of audio-visual classes in the University of California at Los Angeles Extension Center. He has also served as consultant in audio-visual education for the San Bernardino County Schools. Mr. Allen's article is a digest of his Master's thesis which was completed in the Claremont Graduate School in 1948.

audio-visual materials added to the audio-visual department (92%), lists of community resources in various areas of the county (80%), bibliographies of selected references on audio-visual education (78%), bulletins of news and suggestions relative to audio-visual education (77%), and lists of information regarding school journeys (76%).

2. *Local workshops* conducted on the preparation of high school curriculum materials (94%), elementary social studies materials (92%), elementary science materials (81%), elementary art materials (78%), elementary music materials (77%), room environments (77%).
3. *Demonstrations* of effective use of audio-visual materials in teaching the elementary social studies (93%), high school subjects (88%), elementary science (83%), elementary reading (82%). elementary art (82%), elementary language arts (77%), elementary physical education (76%).
4. *Institute sessions* which include preview of new materials (87%), demonstrations with a class of children of correct and effective use of audio-visual materials (82%), exhibits of audio-visual equipment (82%), and exhibits of materials which can be made by teachers (76%).

It is also important to look at those activities which teachers consider to be of *least* value to them in their teaching (the percentage of teachers who listed the activity of "most" value is found in the parenthesis):

1. *Local workshops* conducted on the techniques of educational photography (31%), production of hand made lantern slides (36%).
2. *Institute sessions* which include panel discussions on problems in using audio-visual materials and equipment (34%), lectures on the use of audio-visual materials in the classroom (50%).
3. *Participation in committee group work* on evaluation of radio programs and the preparing of a guide for radio listening on different grade levels (48%).

Conclusions

This survey indicates several key activities that an administrator would be wise to include in his audio-visual supervisory program. He should make sure that information about audio-visual materials is adequately disseminated to all teachers by means of catalogs, lists, and bulletins; he should organize local workshops for the preparation of curricular materials; he should organize demonstrations at institutes and meetings in which actual classes of children are shown being taught with audio-visual materials. In this way, he would start his in-service program with activities which teachers prefer, thus gaining their more ready cooperation and interest.

Emergency and Provisionally Credentialed Elementary School Teachers in California

MYRON MOSKOWITZ
High School of Commerce, San Francisco

THE last war and its far-reaching effects created education situations that call for continual adjustment and appraisal. Such is the case with the teaching-learning situation in the elementary schools especially. In order to provide educational opportunities for the children of the State of California, measures had to be taken to assure an adequate supply of teachers.

The existing shortage of elementary school teachers had become so critical that, beginning in the year 1942, credentials requirements were lowered by legislative action and the first of thousands of substandard-trained teachers were temporarily credentialed and placed in the California public schools. Since 1942, the question of the sub-standard-trained teacher has been the subject of much concern among parents and educators. Conditions have been of such a nature as to render difficult the constant appraisal that this situation required.

The Problem

The time has come to appraise the need for the emergency and provisionally credentialed elementary school teachers in the State of California and to re-evaluate the credentialing policy in regard to these classifications of teachers. The purpose of this study, therefore, was to determine and describe the status of the emergency and provisionally credentialed elementary school teachers in California with regard to their: (1) present employment; (2) certification; (3) professional training; (4) experience; (5) expressed reasons for teaching; (6) reasons for previous withdrawal from teaching; (7) plans to continue teaching; (8) reasons for anticipated withdrawal from teaching.

Procedure

Because of the seriousness of the problem, it was felt that the most significant results could be obtained only by securing responses from *all* emergency or provisionally credentialed teachers holding such credentials

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Dr. Myron Moskowitz is head of the English Department and educational counselor at the High School of Commerce, San Francisco. He has taught in San Francisco for the past seven years. Prior to that time, he taught in Butte County schools. Dr. Moskowitz' article is based upon his doctoral dissertation which was completed at the University of California (Berkeley) in June, 1950.

as of a given date. In order to secure adequate responses to any investigation of this type, it was necessary that the instrument used for securing data be authorized and sent out by the California State Department of Education.

Responses to the official report form were received from 8,784 substandard-trained teachers. This number represented 97.4 per cent of the 9,018 teachers previously reported to the State Department. Of the 8,784 teachers, 7,544, or 85.9 per cent, held the emergency credential; 1,240 teachers, or 14.1 per cent, held the provisional credential. Because of the nature of the data, thorough analysis of the returns necessitated treatment by means of the International Business key-punching and card-sorting machines.

As a final phase of the investigation, a follow-up study in the new school year was made of the present employment and highest credential held as reported by the emergency and provisionally credentialed elementary school teachers in 12 selected counties representing various geographical areas in California. The follow-up technique was undertaken for the purpose of validating the April-May, 1949, responses of the teachers as to their availability for teaching during the ensuing school year, 1949-50, and also to verify the type of credential held.

Inquiry cards were mailed to the 1,374 emergency and provisionally credentialed teachers in the following 12 selected counties: Butte, Inyo, Kern, Kings, Mendocino, Plumas, Riverside, San Joaquin, Santa Barbara, Santa Clara, Shasta, and Trinity. The 1,374 teachers had responded to the items in the official report form concerned with intention to teach during the 1949-50 school year and the credential upon which such anticipated teaching would be performed. Responses were received from 883 teachers representing 64.2 per cent of the total 1,374.

Findings and Conclusions

For the purpose of this abstract, the findings and conclusions are grouped under the following five major classifications: (1) present employment; (2) professional training; (3) experience; (4) reasons for withdrawal from teaching; (5) potential supply of regularly credentialed elementary school teachers.

Present Employment

There is a definite tendency in California to hire emergency and provisionally credentialed teachers on a full-time regular basis regardless of the size and location of the various counties, with one exception (Los Angeles County).

Teachers employed to teach the special subjects of physical education and science seem to be hired as full-time teachers.

The largest numbers of emergency and provisionally credentialed elementary school teachers are now being employed in the kindergarten-primary grades. This level represents a shift in emphasis in the placement of teachers from Grades IV to VI as indicated by the results of Freeman's earlier study.*

The increasing awareness of teachers and school officials of the implications of the provisional credential is indicated by the widespread distribution of provisionally credentialed teachers throughout the counties and the fact that 95 per cent of the 1,240 teachers reporting received the provisional credential in 1948-49.

Counties with large population increases reflect this situation by increases in the number of emergency credentialed teachers hired.

Professional Training

There is a definite and consistent increase in the percentages of teachers intending to hold provisional and regular elementary credentials as the number of college units increases. The greater the amount of college credit that teachers have accumulated, the larger becomes the percentage of teachers who plan to complete the requirements for the regular credential.

School officials appear to be more selective in issuing certificates of need for the emergency elementary credential; on the basis of increased ratios of emergency credentials issued according to highest degrees held, they seem to desire to upgrade the standards for the emergency credential within their own districts or counties. The year 1947 appears to be the turning point in this increase in selectivity.

Experience

There was an available supply of emergency or provisionally credentialed teachers within each county for the school year 1949-50 with a background of certification, professional training, and experience at least equal to that of the teachers available during the school year, 1948-49. Over half of all teachers reporting had recent teaching experience in California or in some other state.

Emergency and provisionally credentialed elementary school teachers are being retained in teaching while they accumulate experience. This conclusion is supported by the 64.3 per cent of all teachers reporting that they have taught on emergency or provisional credentials for more than one year.

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* Freeman, Frank N., "Characteristics of Teachers Holding War-Emergency Credentials," *California Journal of Elementary Education*, California State Department of Education, Sacramento, August, 1944, p. 59.

The emergency and provisionally credentialed teachers now in service represent a potential source of experienced regularly credentialed teachers in that approximately half of the 8,784 teachers involved in this investigation had five or more years' teaching experience, and approximately half of the 8,784 teachers have taught in one or more states other than California.

Reasons for Withdrawal from Teaching

Marriage, maternity, and *entering another occupation* are the three reasons for withdrawal from teaching that are validated in the respective rank order by comparison with the results of the survey by the Bureau of Education Research.

As reported by teachers in this investigation, age is a minor factor in the appraisal of a potential supply of emergency, provisional, or regularly credentialed elementary school teachers.

The replies of teachers to the follow-up inquiry card are distributed throughout the twelve selected counties by percentages in such even proportions as to justify the conclusions relative to validation of previously given data.

The sampling techniques involving reasons other than those indicated in the official report forms afford complete analysis of the various phases of this investigation in which they have been utilized.

Potential Supply of Regularly Credentialed Elementary School Teachers

A definite immediate source of 3,000 regularly credentialed elementary school teachers is available as indicated by approximately 40 per cent of 7,869 teachers who stated that they have the bachelor's degree or four or more years of training beyond high school.

A potential source of 4,000 regularly credentialed elementary school teachers is available within the next two years when the provisionally credentialed teachers are combined with the totals reporting that they hold the bachelor's degree.

The potential number of regularly credentialed teachers within three years increases to 7,029 on the basis of the 85.7 per cent of the 8,202 teachers who report 60 units or more of college work completed.

The number of teachers available during the school year 1949-50 will be equal at least to the number now in service on emergency or provisionally credentialed status. This conclusion is supported by the 90.7 per cent of all teachers who state that they will teach during the school year 1949-50 if offered positions.

A conservative estimate of 1,000 emergency and provisionally credentialed elementary school teachers per year during the period 1949 to 1952 should complete the requirements for the regular credential. This assumption is supported by the 1,857 teachers who state that they expect to complete the requirements for the regular credential in 1949 and the 1,386 who report the same goal for the year 1950.

Approximately 50 per cent of all teachers who did not apply for the emergency credential during the school year 1949-50 should be considered a potential source of future regularly credentialed elementary school teachers.

The 95.4 per cent of the 8,380 teachers intended to teach during the school year 1949-50 offered each county a proportionate number as an available potential supply. The responses of these teachers to the item dealing with intention to teach are close to totality regardless of county.

Recommendations

Serious consideration should be given to the up-grading of the present substandard-trained teachers in service in California within the next two years by raising the requirements for the emergency credential to 60 units of college work.

Provision should be made in an Annual State Report to be returned by all teachers to secure a statement of the exact courses needed to complete the requirements for the regular credential. These courses should be tabulated promptly by geographical areas and the results made available to teacher-training institutions as soon as possible in order that arrangements may be made to offer these courses during the regular sessions and summer sessions following the reporting of such data.

An intensive publicity campaign should be undertaken to make all substandard-trained teachers aware of their professional obligation to upgrade their credentials and at the same time to inform them of the immediate and specific offerings of the various teacher-training institutions provided in response to their reported needs.

A modified form of the present investigation should be undertaken as a continuing annual project in order to provide cumulative information in this phase of the teacher supply situation in California.

Further investigations should be made of the following areas, the need for which having been revealed by the present study: (1) teacher mobility within the State of California; (2) migration of teachers to the State of California with regard to the state from which they come, reasons for migration, salary schedules, and any related aspects of the problem necessary for its proper development.

Book Reviews

How To Make Achievement Tests

ROBERT M. TRAVERS

The Odyssey Press, New York, 1950, 180 pp.

The main purpose of this book, according to the author, is to help teachers develop the types of evaluation instruments that are known as objective tests of achievement. Secondarily, the book suggests a technic for defining educational goals.

Chapter titles will suggest the nature of the content and organization of the book. After a brief introductory chapter, the balance of the book deals with: steps in planning evaluation instruments; objective test questions; rules for constructing multiple-choice test questions; the assembly, administration, and scoring of the test; and the significance of test scores. In the appendix is found a discussion of objective methods of scoring free-answer examinations.

How to Make Achievement Tests is simply and clearly written. It is well organized and should serve as a handy reference or textbook for teacher use or in teacher education classes. The author succeeds in bridging the gap between the theory of test-making and the application of known technics.

The Federal Government and Education

HOLLIS P. ALLEN

McGraw-Hill Book Company, New York, 1950, 333 pp.

Occasionally a professional study in the field of education appears which relates professional problems of education to questions of public policy with such directness that it is of considerable interest and usefulness both to students of education and students of political life and government. Such a book is *The Federal Government and Education,* by Professor Allen, of Claremont Graduate School. It was Professor Allen who prepared the basic studies on the relationship of the Federal Government to education for the Hoover Commission Task Force on Public Welfare. Working with the Brookings Institute, Professor Allen spent many months in intensive review of the far-flung educational activities of the Federal Government and their implications for one of the basic institutions in American life. His book presents a full report of this intensive study. A great deal of the material covered is taken from information provided by Federal departments and agencies, including the Bureau of the Budget.

Typical of the wealth of information gleaned and summarized is the 33-page inventory of Federal educational activities found in Chapter 2. The inventory is in chart form and presents a detailed accounting of Federal expenditures whose proportions are impressive for their size and complexity. The present book is not alone valuable for the coverage of factual evidence with regard to the Federal Government and education, but also cuts deep into some of the most pressing problems of educational policy and leadership faced by the Federal Government at the present time. Those who have followed the controversy over the final Hoover Commission recommendations with regard to education are familiar with the fact that those recommendations are at variance with the conclusions reached by Professor Allen and those assisting him in their objective study. It will be interesting to many to get a clear picture of Professor Allen's recommendations with regard to the function of the Office of Education and its appropriate relation to the rest of the Federal governmental apparatus. All in all, we have here one of the most significant contributions made thus far to an understanding of the facts and fundamental problems involved in the role to be played by our national government in the area of public education.

Financing Education in Efficient School Districts

FRANCIS G. CORNELL, and Others

Bureau of Research and Service, College of Education, University of Illinois, Urbana, Illinois, 1949, 165 pp.

The subtitle of this volume describes its function: "A Study of School Finance in Illinois." While limited to a study of Illinois public schools, the survey and recommendations will be of interest to educators elsewhere. Topics discussed in the book are: (1) pupil distribution, school districts, and dollars; (2) Illinois' school finance problem; (3) reorganizing school districts; (4) comparable units for cost analysis; (5) the combined state-local pattern of financial support; (6) hypothetical plan of optimum district organization; (7) transportation of pupils; (8) school housing for larger attendance units; (9) development of a sparsity formula; and (10) developing methods of estimating school transportation cost for Illinois.

The book contains, in addition to a discussion of modern principles of school finance, many tables, graphs and charts that explain the survey data. Since most states are confronted with the problem of developing better systems of financing their public schools, the Illinois study should prove to be both stimulating and informative.

Research News and Views

A Committee on California School Population has been appointed jointly by Roy E. Simpson, Superintendent of Public Instruction, State Department of Education, and President Robert Gordon Sproul, of the University of California, with the general directive to make a careful study of the California school population in the interest of more accurate predictions of future enrollments.

Chairman of the committee is Joel A. Burkman, assistant chief, Division of State Colleges and Teacher Education, State Department of Education. Other members of the committee are: Kenneth R. Brown, assistant director of research, California Teachers Association; Ellis J. Groff, budget officer, University of California; Warren H. Natwick, consultant, Bureau of Education Research, State Department of Education; J. Neyman, professor of mathematics, director of statistical laboratory, University of California; W. R. Currie, chief financial research technician, Division of Budgets and Accounts, State Department of Finance.

The work of the Committee on California School Population is to be a long-range program. The results of such a study should be of equal interest to school authorities in other states.

* * * * *

Data on size of classes for 1949-50 in public schools in 77 cities over 100,000 population are given in a recent NEA Research Service Bulletin. Similar data for smaller cities will be published in later reports.

Inasmuch as the NEA Research Division has made class size studies every five years since 1930-31, the present bulletin reveals trends in recent years. In addition to statistical data, the study includes reports of policy with respect to class size within the various school districts. Median class sizes reported by cities of over 100,000 population were:

	1940-41	1945-46	1949-50
Elementary Grades	34.1	33.8	32.5
Junior High School	33.4	31.8	31.7
Senior High School	31.1	29.0	28.3

There are from one to two million articles on scientific subjects published annually in some 50,000 scientific journals and reviews. Some 500 internationally-known journals work at abstracting the articles, but many fields lack such services. The UNESCO Conference on Science Abstracting held in Paris, in December, 1949, calls on all scientific periodicals to publish in all languages in their journals synopses of original articles. The scheme has already been adopted by a number of scientific periodicals. The Conference suggested the adoption of standard terminology and presentation for all abstracting journals. (Adapted from *The Phi Delta Kappan,* April, 1950.)

* * * * *

The first statewide study of class size and teacher load involving all teaching personnel in the public schools of California is being conducted by the State Department of Education in cooperation with the California Teachers Association and the California Association of School Administrators. The basic data were collected last April. Separate survey forms were used for elementary teachers, junior high and high school teachers, and junior college teachers. A summary report of the study is to be prepared by the State Department of Education and should be available by January, 1951. A more detailed report presenting county and district comparisons, to be prepared by the CTA. Research Department, will be completed shortly thereafter.

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California colleges and universities graduated 75 per cent more teachers in 1949-50 than in 1948-49, according to the Division of State Colleges and Teacher Education, California State Department of Education. In its second annual study of teacher supply and demand in California, the Division reported also that: (1) the State is training one and one-half times as many secondary school teachers as elementary teachers, whereas the demand in the elementary field is almost three times as great as in the secondary field; (2) one out of every eight persons teaching in California in 1949-50 was on an emergency credential; (3) eight thousand persons who taught in California public schools in 1949-50 were not expected to return to teaching in 1950-51; and (4) California's kindergarten-age population has increased 151.4 per cent since 1940, but the junior college-age group increased only 20.7 per cent.

The complete report of the second annual study of teacher supply and demand in California may be found in the May, 1950, issue of *California Schools,* the official publication of the California State Department of Education.

A survey conducted by the Bureau of Education Research of the California State Department of Education reveals that 146,983 pupils were in double sessions in California school districts at the end of October, 1949. The 1949 figure, in comparison with the 1946 total of 83,483, shows an increase of 63,500, or 76 per cent. The survey also showed that 59,609 children in elementary schools are attending classes in buildings not constructed for school purposes. These included tents, stores, churches, and other quarters converted to classroom use on an emergency basis.

* * * * *

The 1949-50 Annual Report of the Profession to the Public, *Our School Population,* prepared by Dr. Willard E. Givens, executive secretary of the National Education Association, contains up-to-date information on school problems and needs. The report gives evidence to show that present conditions facing the schools (overcrowded classes, teacher shortages, inadequate housing, etc.) are not temporary in nature. Dr. Givens contends that present information justifies the conclusions that aggravated conditions will not be greatly relieved for many years. School construction, for example, must continue at the present rate for the next decade if we hope to provide decent housing for anticipated enrollments.

* * * * *

The Kern County (California) Union High School District has recently completed a comprehensive community occupational survey which is expected to have significant implications for the programs of the schools in the district. Teachers were used for depth interviewing and preliminary sampling. Department heads and teachers of specialized vocational subjects assisted in the preparation of questionnaires, tables, and charts. Civic, business, and professional groups participated in the survey. The county and city Chambers of Commerce were especially active.

A valuable contribution to the success of the survey was made by the newspapers and radio stations of the county through needed publicity. More than 2,000 firms completed questionnaires for the survey.

A chapter is devoted to an analysis of each occupational area in the survey report. The final chapter of the report contains the recommendations of the steering committee. Foremost among the recommendations is a proposal that machinery be set up throughout the district for continuous study, evaluation, and action for bringing the entire vocational education program in line with the community needs. The study was directed by Norman Harris, director of research.

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THE EDITORS SAY: OUR FIRST YEAR!

THIS issue of the *Journal* completes our first year of publication. A perusal of the index (see pages 238-240) reveals that Volume I achieved many of the purposes we had in mind in inaugurating the *California Journal of Educational Research.* Let's take a look in retrospect:

Feature Articles: These have been solid articles prepared by persons who have gained recognition in their respective areas of research. Dr. Morphet's article, evaluating California's program of education in last January's initial issue, started us on our way. Later features included equally significant discussions on the expanding role of educational research, school district reorganization, and the measurement of "intangibles" in education.

Research Digests: Some 28 digests of research studies have appeared this first year. Most of these were abstracts of theses and dissertations completed at California colleges and universities. Included also were some significant studies of school research departments. Digests will continue to constitute the major portion of the *Journal.*

Annual Classified Bibliography of Theses and Dissertations: One of the unique services of the *Journal* is the preparation and publication of the annual classified bibliography of theses and dissertations completed at California colleges and universities. These bibliographies will become increasingly valuable to education departments of the colleges as a handy reference for graduate students. They should prove also to be of value to libraries and research personnel.

Suggested Research Problems: Several issues of Volume I contained lists of suggested research problems. Reader reaction would seem to indicate that such lists are appreciated, especially by colleges and universities in which graduate work in education is carried on. These lists may be expected to become a regular feature in subsequent volumes of the *Journal.*

Research News and Views: To enable our readers to keep abreast of research news, each issue (except May and November) has included the "News and Views" section. Some of these news items have been "exclusives" and have contained relevant information regarding current research projects and thinking.

Book Reviews: As a specialized publication, the *Journal* has restricted its review of current books and literature to material having direct implications for research. Most of the reviews have been annotations rather than critical evaluations. A total of 8 books have been reviewed in Volume I.

We would be remiss if we failed to give due credit to members of the editorial board for the unfailing assistance cheerfully given this past year. We feel fortunate indeed in having such able assistants.

Measuring The "Intangibles" in Education

DR. ALICE M. HORN and DR. ALFRED S. LEWERENZ
Los Angeles City Schools

Paired Comparison Technique

ANOTHER measuring technique entirely different from those previously appearing in the literature and that previously discussed is a sociometric device based upon the ratings of pupils. In use, this technique adapts itself to situations in which the Moreno methodology has been applied in the discovery of pupil constellations.[7] The statistical part of this measure, described later, is known as a paired comparison technique. This method has a long historical ancestry, possibly dating back before the time of the earliest mental test. However, the paired comparison technique in its original form was impossible to use with young children and very difficult for anyone to use with large groups. Through research by one of the writers the paired comparison technique was adapted to a form easy for youngsters to use.[8] It has been used successfullly with fourth grade pupils and found to be highly reliable on that level. As employed, the paired comparison technique has been part of a teaching evaluation procedure.

The earliest part of the work with this technique was done with groups of elementary principals in the Los Angeles City School System. Each of the five elementary district assistant superintendents formed groups of their principals organized to study the problem of measuring the "intangibles." Various groups worked on the several parts of the total problem. For example, the first groups which began working in the six sections of one district were responsible for the method of "objectifying" the intangibles, a technique to be described later. Other groups of principals added to the work done by the first groups until various techniques were developed and tried many times. So many individual principals and teachers contributed to this study that it would be impossible to give credit to all of them.

Identifying Tangible Behavior Traits

The first step in the teaching-evaluation technique is the selection of a trait to be measured. For example, groups have worked on "Courtesy," "Dependability," "Honesty," "Thrift," and so forth. In all, detailed research has been done on approximately twenty-five different traits.

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* This is the second half of the article which appeared in the September issue. For biographical data regarding the authors, see page 147 in the previous issue.

[7] Jennings, Helen Hall, *Sociometry in Group Relations*, American Council on Education, 1948.

[8] Horn, Alice M., *Peer Rating Through Paired Comparisons* (in preparation).

After the trait has been chosen, the technique for making the "intangible" tangible is as follows: Each of the principals working on the trait "Courtesy" announced to his teachers something as follows — "Think of three children, one of whom you consider to be highly courteous, one average in courtesy, and a third low in courtesy. On a small card describe one of the children. Give the *specific behaviors* of the child that make you feel that he is or is not courteous. Follow the same procedure for the other two children. Write these descriptions *quickly* and without regard to spelling, punctuation, or handwriting. Please put the grade level of the children on your cards. You do not need to sign the cards." Teachers were asked to write these descriptions immediately in order that there would be no collaboration outside of the meeting to compare notes or to crystallize ideas. The remarks about spelling and handwriting were inserted in order to center the attention upon the material and not the form. The names were omitted from the cards for the same reason. Each group working on a project was composed of twelve principals; each of these principals in turn supervised more than a score of teachers. Thus, some 300 cards were obtained on each character trait at each level of "high," "average," and "low."

As the project progressed, the procedure of asking for the average case was dropped. It was found that the average child was described as a youngster who possessed the "high" traits to a limited degree, or else exhibited them infrequently, or only when supervised; or, on the other hand, exhibited the "low" traits infrequently or to a minor degree. The committee of teachers and principals actually worked out specific behaviors by age levels, which in itself was a valuable experience and yielded important data. It has been surprising to discover how many by-products there have been to this part of the procedure; that is, making the trait specific in terms of behaviors.

Classroom Use of Behavior Specifications

When a class of pupils uses specific behavior material for the Teaching-Evaluation procedure, the following technique is utilized. The class chooses the character trait to be studied. Again for illustration, "Courtesy" is selected. The teacher secures the set of specific behaviors developed by the principlals and teachers to describe "Courtesy." *However, she does not teach this list.* The pupils in the class develop their own list of meanings of "Courtesy" in a class discussion and make their own outline similar to that made by the principals. The teacher merely uses the principals' list as a reference to see that all of the points are covered by the class discussion. The purpose of the development of the list of specific behaviors by the class is to make the meaning of "Courtesy" clear to these pupils so that they will be expert enough to evaluate each other. However, the procedure actually becomes a teaching and learning situation since the class discussion itself develops new concepts and new ideas on the part of the pupil.

After the pupils have a clear understading of the trait they are evaluating, the actual measuring device is employed. Figure I-A shows a section of a sample page. It will be observed that there is a list of names in numerical consecutive order on the right-hand side of the page and that these same names with their associated numbers appear in a different order on the left-hand side. It was only after considerable experimentation that this numerical arrangement was worked out. It is not likely that any other type of arrangement would yield the final desired result; that is, each child compared twice with every other child in the room.

The paired comparison technique is based on the fact that it is relatively easy for people to make a judgment as to the comparative merit of two individuals on a single quality, whereas it may be very difficult for them to place a value on each individual on a rank order basis.

The whole approach to the paired comparison technique is positive. The class is told that they are to choose the pupils who are highest in "Courtesy." They are also told that, due to the fact that they have been working on "Courtesy," undoubtedly they themselves are all high in the trait or at least higher than pupils in other rooms of similar grade in the school system; that it will be fun for them to discover which are the highest pupils in the room. The actual evaluation results, of course, tend to glamorize the trait as being desirable to have because the three individuals at the top are usually popular children who at the same time possess a high amount of the character trait selected. Thus it appears that possession of this character trait has a high social value.

Using Paired Comparison Techniques

The actual use of the paired comparison technique involves the following steps:

Preparation of the basic list of names:

a. *For classes in which there are an odd number of pupils.* Using the teacher's roll-book, the names of the pupils are listed on the right-hand side of an 8½" x 14" sheet and numbered consecutively. (See Column B in Figure I-A.) The names are again listed on the left-hand side of the sheet in the following order. In the first space of Column A is listed number 1 name in Column B. In the third space of Column B is listed the second name in Column A. In the fifth space in Column A place the third name of Column B, and so on until in the last space of Column A is placed the middle name of Column B. In the second space of Column A is placed the name immediately following the middle name in Column B. The fourth space in Column A is filled with the name coming second below the median and so on until the next to the last space in Column A is filled with the final name in Column B.

Figure I-A illustrates the above procedure using a total of nine cases rather than a class of normal size.

b. *For classes in which there are an even number of pupils.* Using the teacher's roll-book one half of the pupil names are recorded on the right-hand side of an 8½" x 14"sheet, numbered in consecutive order. A blank space is then left before recording the last half of the names in the irregular numerical sequence. The blank space is not numbered. (See center space in Column B in Figure I-B.)

Column A of Figure I-B is constructed as follows: On the first space of Column A is recorded the first name of Column B. In the third space on Column A is recorded the second name of Column B and so on until the third space from the end in Column A is recorded the last name before the blank in Column B. The last space in Column A will be left blank to correspond with the center space of Column B.

In the second space of Column A is recorded the name appearing directly under the blank appearing in Column B. In the fourth space in Column A is recorded the name falling in the second space under the blank in Column B and so on until the last name in Column B appears in the next to the last space in Column A. When the names in Figures I-A or I-B are mimeographed, lines are drawn in as shown.

Figures II-A and II-B show how completed check lists look when made up for individual children. These check lists are prepared by cutting and pasting with stickers Columns "A" and "B" from the basic mimeographed sheet, Figures I-A or I-B; Column C is formed by pasting together two Column A's end to end.

Column B of Figure II-A or II-B is exactly as on the basic form but is fastened to Column C in such a way that the name of the child who will fill out the blank appears in juxtaposition in the two columns. For example, the center, "Robert," No. 5 in Column C of Figure II-A, is placed directly opposite the name "Robert" in Column B. It is best to prepare check lists with the use of stickers since the lists will have to be torn apart later for tabulating.

When sheets are distributed to pupils, these names and symbols are put on the board as part of the directions:

Clara	———	Ruth
Phil	———	Mike
Jane	———	Pete

Pupils are told to complete an arrow with the head pointing in the direction of the name of the pupil possessing the greater amount of the trait being measured thus: Clara |→| Joe. Certain points have to be watched, for example: That the pupils do not draw arrows beneath or above the area of paired names; that is, the area represented by the space beyond the shorter or left-hand list. Also, it is necessary to watch that each pair of names does have an arrow. However, no arrow occurs for the

FIGURE I-A

BASIC FORM FOR ODD NUMBER OF PUPILS

A				B
1. Celsa				1. Celsa
6. Olivia				2. Lanetta
2. Lanetta				3. Arthur
7. Daniel				4. Gilbert
3. Arthur				5. Robert
8. Joseph				6. Olivia
4. Gilbert				7. Daniel
9. John				8. Joseph
5. Robert				9. John

FIGURE I-B

BASIC FORM FOR EVEN NUMBER OF PUPILS

A				B
1. Ronald				1. Ronald
6. Barbara				2. Glenny
2. Glenny				3. Johnny
7. Trevor				4. Jerry
3. Johnny				5. Mosby
8. Horace				
4. Jerry				6. Barbara
9. Diane				7. Trevor
5. Mosby				8. Horace
10. Camille				9. Diane
				10. Camille

FIGURE II-A

CHECK LIST FOR PUPIL NUMBER 5 IN A CLASS
WITH AN ODD NUMBER OF PUPILS

	C			B	
	1. Celsa				
	6. Olivia				
	2. Lanetta				
	7. Daniel				
	3. Arthur			1. Celsa	
	8. Joseph			2. Lanetta	
	4. Gilbert			3. Arthur	
	9. John			4. Gilbert	
→	5. Robert			5. Robert	←
	1. Celsa			6. Olivia	
	6. Olivia			7. Daniel	
	2. Lanetta			8. Joseph	
	7. Daniel			9. John	
	3. Arthur				
	8. Joseph				
	4. Gilbert				
	9. John				
	5. Robert				

Column C in Figure II-A is formed by pasting 2 columns of A's together from Figure I-A.

Column B in Figure II-A is column B in Figure I-A placed along column C so that the name of the child using the check list "Robert" appears opposite itself on both lists (see arrows).

FIGURE II-B

CHECK LIST FOR PUPIL NUMBER 5 IN A CLASS
OF AN EVEN NUMBER OF PUPILS

C			B
1. Ronald			
6. Barbara			
2. Glenny			
7. Trevor			
3. Johnny			1. Ronald
8. Horace			2. Glenny
4. Jerry			3. Johnny
9. Diane			4. Jerry
→ 5. Mosby			5. Mosby ←
10. Camille			
			6. Barbara
1. Ronald			7. Trevor
6. Barbara			8. Horace
2. Glenny			9. Diane
7. Trevor			10. Camille
3. Johnny			
8. Horace			
4. Jerry			
9. Diane			
5. Mosby			
10. Camille			

Column C in Figure II-B is formed by pasting 2 columns of A's together from Figure I-B.

Column B in Figure II-B is column B in Figure I-B placed along column C so that the name of the child using the check list "Mosby" appears opposite itself on both lists (see arrows).

double set of names representing the individual making the evaluation. If there are absentees, a member of the class finishing early is asked to play the part of the absentee and fill the absentee's blank.

An important part of the scheme is the above-mentioned device of inserting a blank space half way down the list on the right-hand side when an even number of cases occur; i.e., at space 17 for 33 cases. This blank space is not needed when there is an odd number of cases in the class. In other words, the class check sheet should always have an odd number of spaces.

Interpreting Rating Results

After the evaluation has been made the papers are torn apart and the arrows are counted in the direction in which they point. Usually the sheets are pinned together in sets of ten and then totals combined on one master sheet. Two values are obtained for each pupil of a class: A value obtained from those portions of the sheets on which the arrow points toward the names on the right and another value from those for the sheets in which the arrow points to the left. The total score for each individual is the sum of these sub-scores. However, reliabilities for the rating procedure can be computed by using the double set of figures as two halves of a split-half test and then computing the reliability by use of the Spearman-Brown technique.

In administering the paired comparison technique in a variety of situations, reliabilities are usually found to be over .90 and reliabilities as high as .94 have been secured. Several times reliabilities have fallen as low as .87. The reliability of the measure is dependent upon the fullness with which the concept has been developed and understood by the class. Where low reliabilities have been secured (i.e., .87), questions have been asked such as, "Who is the leader in the class?," without a build-up of consensus of what "Leadership" means. Sometimes, of course, it is desirable to ask questions without a build-up.

As a direct result of the use of this paired comparison technique, the teacher finds the pupils who rate low in terms of class opinion. It is surprising to find in this whole procedure the clearness and consistency in which fourth grade pupils judge their peers. Almost without exception the pupil whom the adults expect to be high is so rated by the pupils and *vice versa*. However, sometimes there is a difference of opinion as in the case of an occasional pupil who is rated high by adults, but who receives a somewhat lower ranking by the students. This fact, of course, may indicate that this pupil has not exhibited the trait to his peers to such an extent as he has to the adults or else that extreme favoritism shown this pupil by the adults reduces his prestige with his classmates. In either case, wherever it occurs, a discrepancy between adult appraisal and peer appraisal is an important factor to discover about a child.

FIGURE III

SAMPLE SHEET OF NEGATIVE CHARACTERISTICS

L-67
Noisy and loud-mouthed.

L-68
Cries for no apparent reason.

L-69
Is upset in new situations.

L-70
Wields sharp objects.

L-71
Withdraws from group.

L-72
Fights others.

L-73
Frequently incurs group disapproval.

L-74
Hides.

L-75
Appears undernourished.

L-76
Appears fatigued.

L-77
Poor speech — too rapid.

L-78
Displays sadistic actions toward classmates.

L-79
Climbs to excessive heights or on to objects not intended to be climbed.

L-80
Interferes with freedom of action of others by holding, pushing, etc.

L-81
Throws sand or other fine particles in such a way as to endanger eyes, ears, etc.

L-82
Brings dangerous objects to school (explosives, knives, lighter fluids, etc.).

L-83
Sets too high standards for himself.

L-84
Shows lack of care in disposing of waste.

L-85
Is dominated extremely by some other classmates.

L-86
Flatters or apple-polishes. Praises others for own benefit.

L-87
Wishes to perform for group (sing, etc.) but is not accepted by group.

L-88
Unusually quiet — does not like to recite, etc.

L-89
Exhibits signs of jealousy.

L-90
Is demanding and bossy.

L-91
Throws stones, rocks, etc.

L-92
Criticizes and blames others.

L-93
Leaves dangerous openings.

L-94
Attempts or discusses suicide and death.

L-95
Excitable.

L-96
Is ashamed of family background.

L-97
When situation is changed is confused for awhile.

L-98
Uses unusually poor grammar when speaking.

L-99
Builds up defense barrier or masks.

The essential purpose of the paired comparison technique is to enable the teacher to ascertain those pupils ranking low in class estimation on a given trait and therefore in need of special study to discover the cause of their low social acceptance and to determine methods of treatment.

A Technique for the Identification of Specific Behavior Difficulties of Individual Pupils

A third method of measuring "intangibles" on which work recently has been done by one of the authors is that of using pages of perforated gummed-back stickers on each section of which has been printed a specific behavior trait.[9] A sample sheet of negative characteristics is shown in Figure IV. The specific behaviors that have been used are those that were determined by the elementary principals and other groups in their measurement of the "intangibles." A set of sheets of stickers is given to a teacher who is then directed to put down on each sticker the name of that pupil who first comes to his mind when he reads the behavior description.[10]

FIGURE IV

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Child Behavior Work Sheet for Case Analysis

Name of Child ____Grade__________Age______

Sex________IQ________XAGP________XCGP________

Specific Behavior	*Home Background*	*Analysis of the Problem and Tentative Procedure*
L-96 Is ashamed of family background.		*Actual Procedure*
L-90 Is demanding and bossy.		
L-92 Criticizes and blames others.		*Results Revealed by Follow-Up*
L-72 Fights others.		(Date________________)

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[9] Horn, Alice M., "An Improved Pupil Rating Technique For Use By Teachers." (In preparation.)

[10] Patent applied for device of using test items on stickers.

FIGURE V

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Child Behavior Work Sheet for Case Analysis*

Name of Child --Grade------------Age------

Sex---------IQ---------XAGP---------XCGP---------

Specific Behavior	*Home Background*	*Analysis of the Problem and Tentative Procedure*
L-140 Moves without attention to direction.		*Actual Procedure*
L-147 Twitches, fidgets and wiggles.		
L-148 Makes faces.		*Results Revealed by Follow-Up* (Date-------------------)
L-135 Feelings are easily hurt.		

* Items taken from scales worked out by the Elementary Principals of the Los Angeles School System. Manual in preparation will give further information

This plan of associating pupils and behavior, of course, is similar to the "guess who" technique used by other investigators, and may be called a *measuring* as well as a *descriptive* device. Measurement is obtained, since as a usual thing only children having a large amount of the trait are selected. For example, when a teacher has been asked to name a tall child, he usually calls to mind the tallest or nearly the tallest individual — a youngster of exceptional height.

After the pages of stickers have been filled in, they are torn apart and segregated by names. All of the stickers for the same child are then pasted on the record sheet for that child. See sample shown in Figure V. The configuration formed by the behaviors gives clews as to probable causes.

When the technique was first used it was hoped that it would provide a method for teachers to objectify their reactions to behavior cases. To a certain extent this expectation has been fulfilled; that is, the list has helped teachers to be objective in their appraisal of pupil behavior rather than to pigeon-hole behaviors by stereotypes. However, use of the technique has revealed that in those situations where teachers are having difficulty with a certain pupil, the name of such pupil is likely to appear on stickers an excessive number of times. It has been found that an ideal method for utilizing the system is for the counselor to supply the teacher with a set of behaviors to fill in as originally designed, but for the counselor to be present and to record as far as possible the remarks made by the teacher while he is identifying pupils with the behaviors given on the stickers.

Utilizing Results

There are two important results stemming from this procedure. First, a real need for counseling and guidance is indicated for those pupils whose names appear on a large number of stickers; and, second, the remarks made by the teacher to the counselor give the emotional background of the teacher's handling of the particular case and similar cases. In time, of course, the technique will reveal biases of teachers which, in turn, may be corrected by engaging the teacher in a program of child study.

This technique for the identification of pupils with specific behaviors is especially valuable for use with teachers who are reluctant to admit having even minor difficulties with members of their class groups, especially when difficulties are known to exist. Administration of the technique will not only reveal cases which need adjustment, but also attitudes of the teacher toward these and other pupils.

In summary, it may be said that the three techniques described in the accompanying article are examples of approaches to measuring the "intangibles" of education, and as such they constitute a useful addition to sociometric techniques. Through research, such as herein reported, much is being learned about the objective manifestations of behaviors which have been heretofore described in general and inaccurate terms. The significant thing about these researches is that, for the most part, they are being conducted on group bases; that is, pupils are inter-active and results obtain their significance because they are in terms of group relationships. Increasingly the schools must be provided with sociometric devices which will enable educators to estimate how well children are growing in the ability to live, work, and play together. Such long-term studies are essential to the preservation of democracy.

* * * * *

"Every experienced teacher knows that two children with the same I.Q. may differ greatly in the nature of their mental gifts. The I.Q. represents an effort to estimate general intelligence, but it offers no clue as to the nature of that intelligence." (*Excerpt from article by Thelma Gwinn Thurstone,* NEA Journal, *May, 1950.*)

Some Recent Research in Science Education In California Schools

B. FRANK GILLETTE
Stanford University

DURING the past year two important studies in the field of science education have been completed at the School of Education at Stanford University under the direction of the writer. Both studies were similar in respect to the fact that they were concerned with the problem of "lag" in the teaching of current problems in science. One of the studies dealt with the field of "electronics" and the other with that of "atomics."

Lag in Electronics Education

In the early part of 1949, Lagiss[1] surveyed by means of letters and questionnaires the practices in California high schools relative to the teaching of radio or electronics. The *California School Directory for 1948-49* reveals that only 85 out of 439 public high schools in California report formal course offerings in radio or electronics. Most of these schools are the larger ones, with 67 per cent having enrollments greater than one thousand pupils. From these 85 schools, Lagiss selected a sampling of 32 schools on the basis of geographical location and size. This sampling of 32 schools was sent a questionnaire and a personal follow-up letter in order to determine practices in electronics education. Out of the 32 schools, 26 complied with the requests for information.

Results of Electronics Investigation

The findings of the study may be briefly summarized as follows: (1) the listing of objectives varies widely from one school to another, but generally covers the theory of electronics and practical applications; (2) most courses have no prerequisites; (3) most classes are small, with the average being around twenty students, usually from the junior and senior classes; (4) the Morse Code is taught in about half of the schools; (5) some students in most of the schools become "ham" operators; (6) twelve schools have ham stations; (7) many construction projects are attempted, including construction of television receivers; (8) most teachers allow repair

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[1] Lagiss, Chris, "The Teaching of Electronics in California High Schools." Unpublished M.A. thesis, Stanford University, 1949.

Dr. B. Frank Gillette for the past three years has served as assistant professor of education at Stanford University. He formerly served as teacher and principal in several Missouri high schools. His article is based on his doctoral dissertation which was completed at Stanford University in 1948.

work to be done in school; (9) the same inadequate textbook (a 1946 edition) is used in almost all schools; and (10) equipment and supplies are limited, as is budgetary provision for the courses.

Conclusions Concerning Electronics Education

From these findings the author concludes that: (1) the field of electronics is not receiving its proper position in California secondary schools; (2) texts and references are not written for highschool students; (3) inadequate and obsolete equipment is being used; (4) in spite of these limitations, the courses are wide in scope and give good backgrounds in electronics; (5) both students and teachers judge the courses as excellent. Mr. Lagiss recommends that a greater emphasis be placed upon electronics education in teacher-training institutions as one step toward a solution of some of the difficulties mentioned.

Lag in Atomics Education

In a somewhat similar piece of educational research, Rutherford[2] investigated the teaching of "atomics" in the physics courses in California public high schools. Rutherford outlined his problem in the form of three questions.

1. What are the present practices concerning the treatment of the topic of atomics in the California secondary school physics courses? To answer this question, Rutherford went directly to the teachers themselves, using a well-structured questionnaire which explored many facets of the question. He received replies from 149 out of 300 physics teachers in California public high schools.
2. What should the practices be with respect to the treatment of atomics in the secondary school physics courses? Since this is a question of *judgment*, Mr. Rutherford consulted two sources which could be assumed to speak with authority on this subject. One of these was the professional literature in science education which pertained particularly to the teaching of atomics. The other source was a group of eleven college and university professors, consisting of three from "Education," five from "Physics," and three from "Atomics."
3. How do the present practices in the treatment of atomics in high school physics courses compare with the practices that should exist? This question required the comparison of data obtained in answering questions one and two above.

Results of Atomics Education

The investigator discovered a clear pattern of practices in the teaching of atomics. Three fifths of the reporting teachers present a unit of study on atomic energy. The remaining forty per cent do not because they lack the time to prepare such a unit, because they lack sufficient background in nuclear physics, or because they believe that atomic energy is not an important enough topic to warrant displacing other topics. The average length of time spent on the sutdy of atomic energy is about a week and a half. The chief emphasis in the unit is that of building up a store of facts, concepts, and principles about atomic energy. Little attention is given to social and philosophical principles involved in the use of atomic energy, to peacetime applications of energy, or to an appreciation of the teamwork involved in this type of scientific research. Class discussion and lecturing are the most widely used teaching methods, with considerable enrichment from the use of films, film strips, charts, and models. Very rarely, however, are any of these visual aids prepared by the students, and little project work is included in the unit. Sixty per cent of the teachers who report using a unit in atomic energy make use of physics texts published before 1946.

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[2] Rutherford, Floyd James, "The Status of Atomic Energy in the Secondary Schools of California." Unpublished M.A. thesis, Stanford University, 1949.

With only one exception among the experts who were interviewed, there was agreement with the professional literature that a great deal more should be done about atomic energy education in high school physics courses. The one dissenter believed that the subject is too abstract and involved for the inexperienced high school student who also lacks sufficient foundation in physics and mathematics for an "acceptable" study of atomics. The study revealed some area of agreement among the authorities as to the nature of what should be taught and the amount of time which should be allocated. These judgments showed distinct differences from the actual practices summarized above. A dramatic lag was revealed in almost all aspects of the teaching — including such matters of breadth of objectives, textbooks and materials to be used, and time to be spent on the unit.

Conclusions for Atomics Education

Rutherford concludes his study with the statement that " . . . entirely too many physics teachers are not fulfilling their responsibilities with respect to the teaching of atomic energy . . . " His conclusion was thoroughly substantiated during the early months of 1950 by inaccurate newspaper accounts and public speculation about the "Hydrogen Bomb."

* * * *

Second Annual Conference on Educational Research

The 1950 California Conference on Educational Research will be held on November 10 and 11 at Mills College, Oakland. Conference theme will be "Evaluation in Education." Program features will include a Critique to appraise the new California *Handbook on Evaluation*, a Luncheon Session with an outstanding speaker, two panels on how to use appraisal data, and a symposium on the problems in the interpretation and use of published tests. Serving on the symposium will be invited representatives of the major test publishing firms. Conference invitations have been sent to people representing school districts, county school offices, guidance and research departments, and colleges and universities. An attendance of 200 persons is anticipated at the two-day conference.

Free Teaching Aids In California Schools*

FRANKLIN K. PATTERSON
Pasadena City Schools

How Teaching Aids are Chosen

EDUCATION reflects in many ways the procedures employed for developing the curriculum. An integral concern of this survey was to find out, in a general way at least, the procedures whereby sponsored aids are reviewed and chosen. The results of this phase of the inquiry are shown in the following table:

TABLE II

PROCEDURES USED FOR REVIEW AND CHOICE OF DONATED TEACHING AIDS IN RESPONDING SYSTEMS

Types of Procedure	*Percentage of Systems Reporting Use*
1. None, due to administrative policy adverse to use of such aids	0.0
2. Examination, and approval or disapproval by superintendent, curriculum specialists, or supervisors	42.2
3. Examination, and approval or disapproval by individual school principals or classroom teachers	18.4
4. Consideration, and approval or disapproval by faculty, faculty-administration, or faculty-administration-parent curriculum committees	5.2
5. Combinations of 2, 3, and 4 above	34.2

It might be contended that the second and third forms of procedure are in some respects authoritarian, involving, in the case of the second form, only top-level administrative judgment. In all cases where the teacher was shown by the questionnaire to have a measure of discretion, it is subject to higher administrative veto. The fourth form, involving committes of varying composition, can be construed as being more representative and in some degree more democratic.

In view of these possible interpretations, it is extremely interesting to examine and compare the percentages shown. Nearly half of the respond-

Franklin K. Patterson is assistant curriculum coordinator in the Pasadena City Schools. His professional experience includes junior high school core work, adult education, and junior college social studies teacher. During World War II, he was engaged in educational work with U.S.A.A.F.

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* This is the second half of Mr. Patterson's article which appeared in the September issue of the *Journal*.

ing systems report adoption of donated teaching aids by top-level judgment only. If figures for the three quasi-authoritarian procedures are added together, a total of 86.8 per cent of responding systems operated in this critical area of curriculum development without using techniques of representative group consideration and choice.

Advertising or Propaganda Content

An aspect of sponsored aids from which much discussion has arisen is that of degree of advertising or propaganda to be permitted. The present survey aimed at discovering administrative policy in this regard and obtained the results shown in Table III.

TABLE III

PERCENTAGES OF RESPONDING SYSTEMS USING AIDS
CLASSIFIED BY ADVERTISING CONTENT *

Types of Aids	*Percentage of Schools Using Type*
1. Only aids exhibiting no indication of origin	7.3
2. Aids which may include a minimal indication of origin	92.6
3. Aids containing definite advertising or propaganda as long as content is useful	12.1

* Some respondents checked more than one answer, hence the total exceeds 100.

Almost all respondents evidenced concern for the degree of advertising or propaganda present in sponsored aids. This is clear enough in the percentages shown and is borne out by a number of comments elicited by the questionnaire. Only a very small percentage would limit use of donated aids to those showing no sign of origin. A somewhat larger percentage are willing to accept aids which contain "definite advertising or propaganda." The data revealed no serious questioning of the use of at least *some* advertising and propaganda offered from outside the official framework of public education. Practically no administrators felt that *any advertising is excessive advertising,* when its "show case" is the public school.

Sources of Free Instructional Materials

An analysis of the typical sources of sponsored aids drawn upon by responding school systems demonstrates the preponderance of organized business and manufacturing interests in this field. With advertising as a motive and with money to promote their use, business and manufacturing interests have achieved a wide acceptance of their teaching materials. This acceptance is shown in Table IV.

TABLE IV

ACCEPTANCE OF DONATED TEACHING AIDS FROM VARIOUS TYPES OF SOURCES

Types of Sources	*Percentage of Schools Reporting use of Aids from Each Type of Source*
1. Manufacturing firms	85.3
2. Business firms	75.6
3. Manufacturing and Business associations	68.3
4. Fraternal societies	14.6
5. Religious groups	12.1
6. Labor Unions	12.1
7. Other	21.9

It is doubtful that the actual use of labor union sources is as great as shown in the table. It is, of course, certain that the *quantity* of aids from labor unions used by any school system in the survey is not remotely comparable to the quantity used from business sponsors. In a follow-up inquiry of the few systems reporting use of labor union sources, comments like the following were obtained:

> Both AFL and CIO make available to us the published material relative to union policies, and so forth. I do not recall, or have available for immediate reference, the titles of any of the publications.

This comment, coming from one of the largest cities in the survey, does not suggest anything like the currency and active use given to business-sponsored aids.

Most of the sources itemized under "Other" are ones generally friendly to business and manufacturing from the viewpoint of natural interest. Typical of these sources are Chambers of Commerce, Kiwanis, Rotary, and other service clubs. Thus, the school systems reporting afford an outlet for sponsored aids whose origin is largely from one segment of the economy. The axe that the schools are called upon to grind, in this connection, has two edges: one is the direct and indirect advertising of commodities and producers to further immediate or eventual consumption of a desired kind; the other is enhancement of the general prestige and status of these economic interests and the social groups that derive from them.

Towards an Increasingly Responsible Policy

This California survey underlines certain earlier conclusions; it is hoped that it may suggest also possible directions for future development of policy. The questionnaire confirms the general use of sponsored materials and points up a lack of representative group techniques for the development of this phase of the curriculum. Through it can be seen a measure of administrative concern for the role of advertising matter in the schools, and yet a prevailing acceptance of advertising and propaganda providing it is "minimal" or "moderate" and presumably of the "right" kind. Also evident in the results of the survey is the fact that the overwhelming majority of donated aids are sponsored by business, manufacturing, and related derivative organizations. Stated in another way, it may be said that this small, but significant, part of the curriculum is dependent almost entirely upon large economic interests for its being.

Dameron has summarized the majority educational position by his maxim concerning the sponsored aid: " . . . if advertising dominates the material, it is not educationally sound."(5) The question at present with most administrators and teachers is not whether the sponsored aid presents advertising or progaganda, but whether that phase of its content is *dominant.* In a poll reported in 1946, *Nation's Schools* found that only 17 per cent of educators would eliminate *all* propaganda for a particular product in sponsored aids, and that the same small percentage would eliminate propaganda to indoctrinate for a specific point of view. The editors expressed the hope that the reason for this was that the educators involved wished to guarantee freedom of choice to their students and not "that the propaganda is too subtle for recognition by those who select the materials or that since it coincides with their own political beliefs, they admit it as factual matter."(2)

The facts that are available suggest the characteristics which an increasingly responsible policy might have. Some of these are listed below:

1. Policy on sponsored aids should be a *specifically stated part of the administrative program* held to by any school system. If it is not specific, not thought-through, and not set forth clearly, the possibilities of distorting the educational program through misuse will be multiplied.

2. A system should depend as entirely as possible upon offerings of those firms *especially engaged in the business of selling materials* to the public schools, rather than upon materials produced by organizations not so engaged. This is both better business and better educational policy because it places the responsibility for filling school needs on those portions of the busines community whose welfare depends upon satisfying the most objective needs of the schools. Such firms have no ulterior purposes in dealing with education. To justify adoption of sponsored aids on grounds of a need which regular funds will not supply may be to fall into the error of Faust. The point of view can be defended in that it is better to risk a slightly less rich classroom offering than to set up the school as a distributor of materials prepared by private organizations for private ends.

3. If stated policy contemplates the possible use of some sponsored aids, then the procedures established for review, evaluation, and adoption should:
   a. Provide for competent and professional appraisal of the contribution materials may make to the educational program.

b. Provide for democratic professional representation in such appraisal to insure the classroom teacher a share in evaluation.

c. Provide means for representing as far as possible the total character of the community in evaluation.

4. Stated policy should contain concrete criteria and limitations based upon the premise that our enterprise is truly *public* education and that any effort, no matter how attractive and even if extremely subtle and long-range, to exploit our enterprise for private ends must be avoided.

Attitudes, understandings, and policies evolve slowly. It is significant that many educators are aware of problems growing out of donated teaching materials and are willing to discuss the matter at some length. It is significant, too, that the literature pertaining to this subject has increased in the past several years. Perhaps we are approaching a time when the acceptance and use of free teaching aids will be seen in full measure as a question of broad social implications for the educational program.

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Style In Reporting Research

J. R. SHANNON
Sacramento State College

JUST as every person has personality, so does every writer have style. But just as one person's personality may be attractive, another's insipid, and a third's repulsive, so is one writer's product fascinating, another's neutral, and a third's boring. "Literature," says Henry Van Dyke, "consists of those writings which interpret the meanings of nature and life, in words of charm and power, touched with the personality of the author, in artistic forms of permanent interest."

" 'Style' writing is by and large for fiction," says one educational editor, but another replies, "All writing is to be read. Contrary to current practice, dullness is not a sign of intellectuality." And the editor of America's most widely circulated educational periodical laments, "Educators seem to lack both style sense and knowledge of ordinary grammar to a surprising degree." A concurring editor complained, "Men who write reports act as if they never expected them to be published but they make the most changes in the galley proof."

Educational Editors' Attitudes

There is no merit in a writer's aiming to suppress his personality and individuality and in making his reports matter-of-fact and impersonal. Even if it were desirable, suppressing one's personality in writing would be difficult, if not impossible. A survey of attitudes and practices of educational editors, made by the writer and published currently in the *Journal of Educational Research,* shows that the editors vote more than four to one against such color-blind exposition in non-research writing, although they favor it five to three in research reports. Their comments show, however, that their difference in attitudes is due largely to their objections against a researcher's showing bias. A considerable number say they often rewrite whole articles received from contributors because the articles' style is bad, and a majority of them say they often rewrite whole paragraphs of articles because of bad style, although here again the rewriting is less common for research reports than non-research ones.

Dr. J. R. Shannon, before coming to California two years ago, taught for 21 years at Indiana State Teachers College, Terre Haute. He is beginning his third year at Sacramento State College, where he holds the rank of associate professor of education. Dr. Shannon received his Ph.D. at Indiana University in 1927. He has published many articles in recent years in various professional journals. The ideas presented in his present article should stimulate educational writers to express themselves more interestingly and explicitly.

Only a few educational editors insist upon superior style in the manuscripts they receive; a substantial majority prefer superior style but will accept good style; few are indifferent toward style. Among the top-ranking reasons for editors rejecting manuscripts is that the articles have worthy substance, but bad style of exposition. Almost as many articles are rejected for that reason as for its converse (the style of writing is satisfactory but the substance unworthy of publication). Tied in frequently with this opposite reason are rejections because both substance and style of writing are unworthy.

Ideals of Excellence in Style

Superior style is interpreted to mean the unique characteristics of an individual's method of communicating ideas in written form with an artistic quality which attracts admiration by itself, aside from the substance of the idea being expressed. *Good style* is interpreted to mean one in which ideas are expressed clearly and in an interesting and readable manner. *Poor style* is interpreted to mean one in which the ideas are expressed in a way that is hard to comprehend and which tends to repel or annoy the reader. It is assumed, furthermore, that professional writing should have a style which attracts. It should be not only readable but artistic, which, however, does not imply jazz. If William James and William McAndrew, for example, could write fascinatingly, so can other educators.

Research men, in particular, need to learn how to write. Research is a pleasurable occupation, but a layman would never think so from reading most reports of researches in education. Researchers repel readers by their incompetence as writers, and thereby they do injury to themselvs and injustic to their readers. A writer does not have a professional or moral right to be cumbersome and dull. Dull writing is not a weakness which researchers can shrug off as inconsequential any more than dull wit. It is hard to believe that a man smart enough to do a reputable piece of research is not also smart enough to report it with equal competence if he wants to. Writing is an art which can be learned.

How to Get Started

Mark Twain once said books write themselves if the writer gets started right. A former president of Reed College said, "The high lights of a discourse are the beginning and the end." Taking the cue from these two successful writers, how does one get started right?

Francis Bacon — and he ought to know — gives suggestion number one: "A man would do well to carry a pencil in his pocket and write down thoughts of the moment; those that come unsought-for are commonly the most valuable, and should be sacred because they seldom return." A research man lives for weeks or months with his project and, as he does so, effective sentences accrete in his subconcious. As these bits of inspiration are revealed to consciousness, the writer must seize them if he wants to write inspiringly. James Whitcomb Riley once said writing was like giving birth to a rough-shod colt. It would be a shame to permit a stillbirth simply because of lethargy or unconcern by the mare.

In the absence of spontaneously generated "heat" for writing, a researcher can generate it by hard work and concentration. America's most prolific writer of research reports in educational periodicals has testified that he often spends a full evening (perhaps four hours) on the first paragraph, writing, rewriting, and revising it until it suits him after it gets "cold." One must study to get unstudied exposition.

An artificial device for working up heat is a little hard liquor. Alcohol has the physiopsychological effect of releasing one's inhibitions. The colt is trying to leave its incubator but the mare is trying to suppress travail; a little brandy lets nature take its course.

Nathaniel Hawthorne was a badly inhibited man. He once said he always debated before saying or writing anything, considering whether it would make of him a hero or a fool. Too bad he was so puritanical! As it is, we have but little from his pen, and one of his masterpieces has been judged by a committee of experts as the best novel ever written. At the same time Hawthorne was too inhibited to let his genius flow, Daniel Webster, Hawthorne's fellow churchman, always made suitable preparation for his oratorical encounters by imbibing freely at the Congressional bar.

Keeping Going

When a writer is once "hot," he should keep firing until circumstances compel him to quit or until he grows "cold." If compelled to suffer interruption, he should leave a cue for himself in the form of a topic sentence for the next paragraph or some hastily jotted notes for succeeding paragraphs. Until one acquires mastery of artful writing, he should postpone consulting the dictionary for spellings or meanings of words while in the heat of exposition. Those chores can be performed by any plodder.

When Clemens said books wrote themselves if one got started right, he added that when a writer's "tank runs dry," he should pigeonhole the manuscript a couple of years and the "tank will fill up." This means more spontaneous generation of inspiration. But the impatient researcher usually can't wait, and there is where the "books-write-themselves" part comes in. If the writer, once he gets started right, will, on resuming his writing after an interruption, reread what he already has written, he will thereby generate enough steam to propel him through another sitting. Rereading is helpful also at frequent intervals during any single sitting in aiding one to maintain consistency in style.

Final Rechecking

After the researcher has finished writing a report, he should let it set for a day or longer until it "gets cold." Then he should read it three more times, once for each of three purposes. A normal man is not smart enough to do any two of the three at once.

First, he should read for exactness of statement. Is his exposition semantically sound? Has he said what he meant to say? Is his report such that it not only can be understood, but can't be misunderstood by a person with normal intelligence?

Second, he should read for purity of English. Is the report grammatically and rhetorically sound? Are there any unintentional English errors? Is all spelling and punctuation correct?

Finally, he should read the entire manuscript for consistency and effectiveness of style.

When a research report passes all these tests, it is ready for final typing. Does it take time? Surely! So did the doing of the research project in the first place. Can't a researcher now give his offspring enough midwifery to assure its freedom from birth injury? If a research scholar has the patience to conceive a project and incubate it, can't he be a bit patient and not inject pituitrin too early? Remember Riley's counsel: Writing is like giving birth to a rough-shod colt. Let's allow the colt to become a race horse and not a crippled plug.

Twelve educators have been selected by the state colleges and independent colleges of California as official editorial representatives of their institutions. Named by their presidents, the following persons will be responsible for "screening" articles for possible publication in the *California Journal of Educational Research:*

College	*Representative*
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Chapman College	Dr. Virgil L. McPherson
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George Pepperdine College	Dr. E. V. Pullias
Sacramento State College	Dr. J. R. Shannon
San Francisco State College	Dr. George D. Gibson
San Jose State College	Dr. Brant Clark
University of Redlands	Dr. Floyd C. Wilcox

Research articles or news items may be sent to the above-named representatives for evaluation. Articles considered to be worthy of publication will, in turn, be forwarded to either Dr. Hugh M. Bell, Chico State College, or to the editor at San Francisco.

What About the Use of Personality Questionnaires?

WILLIAM J. LODGE
Chico State College

GOOD teachers and administrators everywhere are concerned with the appraisal of that elusive intangible, the personality of individual children. Both for school measurement purposes and for graduate studies, personality questionnaires are tempting devices primarily because of their standardized and economical administration, scoring and interpretation. The validity of these instruments, however, is another story.

The writer's review of over two hundred articles and experimental studies leads to the following conclusions of interest to school people: (4)

1. Personality measurement is still in an early developmental stage.
2. So-called "paper and pencil" personality questionnaires generally possess a low degree of validity.
3. A relationship between verbal and overt behavior is often assumed rather than determined experimentally.
4. Most subjects can and do falsify many of their responses to personality questionnaires. In addition to deliberate falsification, such factors as lack of self-insight, wishful thinking, and inhibition may distort the results.
5. Poor (or neurotic) scores on personality questionnaires may be meaningful, but good (or non-neurotic) scores may be meaningless. Considerable evidence shows that many psychiatric patients obtain "good" neurotic scores on personality questionnaires. This and other findings have led some writers to conclude that these instruments are more a measure of honesty or naivete than of neuroticism.
6. Many personality questionnaires purportedly measuring the same traits have been found to have low intercorrelations.
7. Ellis' extensive survey of validity studies led to the conclusion that personality questionnaires at present are of dubious value in distinguishing between groups of adjusted and maladjusted subjects and of even less value in individual diagnosis. (1)
8. The validity of personality questionnaires is probably high only in those relatively few cases where a competent subject is sufficiently motivated to give truthful replies.

Dr. William J. Lodge is professor of education at Chico State College. His prior professional experience included teaching and administration in the public schools of New York, New Mexico, and California. His article is based on his Ph.D. dissertation which was completed at the University of California, Berkeley, in August, 1949.

9. Personality questionnaire results, supplemented by other data, may be very useful to a skilled clinician.

Many of the aforementioned conclusions are supported and none disproved by the writer's study evaluating the validity of a direct and of a parallel indirect form of personality questionnaire through correlations of scores with external criteria, by direct comparison of mean scores, and by an item analysis.(4)

Technic Used in Study

The questionnaire employed in this study consists of forty-three items, thirty-one of which were included in the total of thirty-six used by Ellis (2) and obtained by him from an item frequency count of eight popular commercial personality inventories. Five Hartshorne and May (3) "ringer" or "truthfulness" items and seven cheating attitude questions were added by the writer, the former in an attempt to eliminate obviously invalid or untruthful papers and the latter for the purpose of correlating cheating attitudes as expressed verbally with cheating behavior as measured experimentally. The forty-three items were drawn randomly and were then written in direct and indirect form respectively as shown in the following example:

Direct: I cry
VERY OFTEN PRETTY OFTEN SELDOM NEVER

Indirect: Children who often cry are
VERY QUEER PRETTY QUEER A LITTLE QUEER NOT AT ALL QUEER

The theory underlying the experiment, advanced by several writers but not confirmed by this study, is that children who, for example, cry frequently will rate other similar children as NOT AT ALL QUEER, and thus will reveal their own characteristics while they think they are rating others.

Categories into which the questionnaire items were classified are fears, school adjustment, social adjustment, sensitivity and excitability, and psychosomatic symptoms. Typically home-adjustment questions are included in this type of instrument, but they were omitted in this study in order to prevent any possible home and school conflict. The reliability of the two forms, as determined by split-half Pearson *r*'s, was .83, P. E. —.02 for the direct form, and .86, P. E. +.02 for the indirect.

Each of the two forms of the questionnaire was given to a group of two hundred and forty-four fifth, sixth, and seventh grade California public school children, the two groups matched for grade, sex, intelligence quotients, reading comprehension, and socio-economic status, for the purpose of comparing the direct form of the questionnaire with the indirect form. School records yielded grade, I.Q., and socio-economic status; and the latter was converted to a numerical rating in accordance with the *Barr Scale Ratings of Occupational Status* (5:66-72). A standardized reading comprehension test, which was self-scored after it had been scored secretly by the experimenter, served the dual purpose of providing a reading comprehension score and an experimentally controlled cheating-behavior score. Finally, a sociometric instrument yielded a measure of the status of the children with their peers for comparison with their own estimate of their social adjustment as determined by the personality questionnaire. Correlations of these data may be summarized as follows:

TABLE I

CORRELATIONS OF QUESTIONNAIRE RESPONSES WITH EXTERNAL CRITERIA

"Unfavorable" or Poor Questionnaire Responses	External Criteria	Tetrachoric *r* Coefficient of Correlation	
		Direct	*Indirect*
1. Social Adjustment section of personality questionnaire	Sociometric Ratings	+.20	—.21
2. School Adjustment section of personality questionnaire	Intelligence Quotients	+.17	—.19
3. Cheating Attitudes section of personality questionnaire	Cheating Behavior Ratings	+.08	+.25
4. Total personality questionnaire score	Intelligence Quotients	—.15	+.31
5. Total personality questionnaire score	Reading Comprehension Scores	—.04	+.28
6. Total personality questionnaire score	Socio-Economic Status Ratings	—.13	+.06

The above correlations point unequivocally to the conclusion that, as measured at these grade levels and according to the external criteria employed in the study, the direct form of the questionnaire possesses virtually zero validity and the indirect form a very low degree of validity as a measure of the child himself, however valid it may be as a measure of his opinion of others.

Negative *r*'s for the indirect form on correlations Nos. 1 and 2, and a higher positive *r* on No. 3 above suggest some superiority for the indirect form. But positive *r*'s for the indirect form on correlations Nos. 4, 5 and 6 indicate either that the subjects were rating other children as instructed or that superior children tend to have a greater number of personality problems than do those below the mean. Neither the literature generally, nor this study particularly, will support the latter conclusion. The following "ringer" item comparisons, confirmed by the complete item analysis, support the finding that children generally do not make the personal identification suggested by some previous writers, but do respond with their opinion of other children as requested:

Item	*Direct* N = 244	*Indirect* N = 244
Keeps other children quiet when the teacher is out of the room	99	192
Picks up broken glass lying in the street	72	156
Smiles when things go wrong	92	112
Reports to the police the license numbers of speeding automobiles	27	162
Reports to the teacher other children whom he sees cheating	33	69

Invalidity is also strongly suggested by mean comparisons of the two forms of the questionnaire, since there were approximately twice as many alleged "unfavorable" or "neurotic" responses to the indirect form. The means were significantly different at the one per cent level of confidence according to a rigid chi-square comparison.

Conclusions

In conclusion, it is suggested that psychologists are likely to underemphasize the tendency of the school child to give the "right" answers to any type of instrument which is administered in the school situation. The literature generally, supported in part by the study briefly reported in these pages, indicates that paper-and-pencil personality questionnaires are not yet ready for school use for survey purposes, however valuable individual papers, supplemented by other data, might be to a clinical psychologist. In the writer's opinion, backed by a considerable body of research evidence, the blunt, undisguised or thinly disguised type of personality questionnaire is a most unpromising instrument for school use. It is suggested that studies of children's interests and group projective or semiprojective techniques probably are more promising for school purposes and that sociometric instruments are of considerable value at present.

Finally, personality appraisal of the school child still is and perhaps always will be largely a matter of teacher understanding of the child. This implies the use of observations, anecdotal records, a knowledge of the social status of the child and of his parents, and the use of measuring instruments as their validity is established and confirmed by independent investigators — all against a better background of knowledge of child psychology than is possessed by many teachers at present.

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Special Educational Services — Practices and Policies of Large School Districts

BERNICE LONG VUKOTA
San Francisco Unified School District

IT IS the desire of every metropolitan school system to provide education for as many deviates from normal as are found in the general population. It is difficult to evaluate the extent to which this objective is met. We know, however, that classes must be small, special equipment must be provided, specially trained teachers must be employed, and costs will soar far above that of educating normal children.

In January 1950, San Francisco investigated through a national survey of the 45 cities over 300,000 a few administrative practices and policies concerning special educational services for mental, emotional, and physical deviates. While 30 cities responded, differences in pupil accounting procedures make it almost impossible to arrive at comparable cost figures. The information on services maintained and class size appear to be more reliable. Although information was asked for on both the elementary and secondary level, the information received on the secondary level was so fragmentary that the figures could not be included in this study.

Types of Services Maintained

Among the 30 cities reporting there was a considerable variance in the types of services maintained. Table I, which follows, gives the special types of classes provided, with the corresponding number of cities maintaining them.

TABLE I

TYPES OF SPECIAL CLASSES MAINTAINED

Types of Class	*Number of Cities*
Mentally Retarded	29
Emotionally Disturbed	11
Health Classes	14
Conservation of Vision	29
Deafened	27
Hard of Hearing	25
Crippled	29
Spastic	16

Bernice Long Vukota is research assistant in the San Francisco Unified School District. She had previously served as a junior high school teacher in San Francisco, and as supervisor of personnel training in the State Department of Employment. Mrs. Vukota received her A.B. at San Jose State College, and is at present a candidate for the Master's degree at the University of California, Berkeley.

It appears, therefore, that practically all large cities maintain at elementary level classes for the mentally retarded, the crippled, and children with auditory and visual defects. Sixteen of the 30 cities maintain classes for spastic children. This service, while relatively new, is gaining momentum through the activities of the Society for Spastics. While only 14 cities reported that they had health classes and 11 reported classes for the emotionally disturbed, others indicate they have facilities outside of the school for handling such problems.

Class Size

A factor of importance in special class organization is limiting the class size in such a way that the children will derive the maximum benefits and that the cost will not become prohibitive.

Table II shows a distribution of the class sizes reported by the various cities for their regular classes as well as for special services.

TABLE II

MINIMUM AND MAXIMUM SIZE—SPECIAL CLASSES
CITIES OVER 300,000

	Minimum		*Maximum*	
Type of Class	*Median*	*Range*	*Median*	*Range*
Regular Classes	26	16 - 40	41	20 - 50
Mentally Retarded	10	5 - 15	20	12 - 34
Emotionally Disturbed	10	6 - 15	20	12 - 25
Health Classes	15	8 - 29	25	12 - 35
Conservation of Vision	10	5 - 12	15	12 - 20
Deafened Children	6	5 - 10	10	8 - 20
Hard of Hearing	10	6 - 12	15	10 - 20
Crippled	12	*5 - 16	20	12 - 25
Spastic	8	6 - 15	15	10 - 24

* Includes spastics (cerebral palsied) in some cities.

While it is obvious that there is no great consistency among cities, the size of class is definitely modified by the nature of the instructional problems to be met. While classes run as low as five for spastic children to 35 for health classes, there are definite trends for special types of deviates. Health classes are larger, on the average, than for any other special service, having higher minimum as well as maximum class size. Classes for the mentally retarded, the emotionally disturbed, and for crippled children are, on the average, about five lower than for children in health classes. The smallest class sizes are found among the completely deafened and the spastic children.

Basis for Determining Class Size

Because a majority of cities maintain special services in classes of a certain size, it does not imply that this is the optimum size for such classes. In dealing with children who deviate from normal, it follows that the wider the deviation the greater the need for individual attention. The classes are probably never as small as teachers would choose nor as large as the budget committee would like. In answer to the question on the determinants of class size, the following results were found:

Method of Determining	*Number of Cities*
Minimum Set by Board Rule	14
Maximum Set by Board Rule	11
School Administrators and Teachers	8
Necessity	2

It appears, therefore, that the size of class is determined in fewer than 50 per cent of the cases by board rule. In California the State Board of Education sets the maximum but not the minimum size for classes for the mentally retarded. In the light of the foregoing, it appears that the size of classes is largely determined by the number of children who can be instructed conveniently in the group.

Cost of Special Class Services

As the class size goes down, it follows that the cost per unit of education rises. These per unit costs, however, should be considered in their relation to the cost of educating the normal child. Table III, which follows, compares the cost of special services per unit of A.D.A. with the cost in regular classes.

TABLE III

COST OF SPECIAL SERVICES PER UNIT OF A.D.A. COMPARED WITH REGULAR CLASSES, 1948-1949, IN CITIES OVER 300,000

Type of Class	*Minimum*	*Median*	*Maximum*
Regular	$134.98	$181.50	$241.38
Mentally Retarded	200.00	337.97	548.99
Emotionally Disturbed	285.00	510.07	806.00
Health Classes	251.00	354.00	580.48
Conservation of Vision	283.00	469.87	756.00
Deafened Children	300.00	608.67	1,166.24
Hard of Hearing	300.00	421.59	856.00
Crippled and Spastic	300.00	550.66	1,153.73

This survey made no attempt to determine the desirability or undesirability of segregating children who deviate from normal, either mentally or physically. A few of the questionnaires contained comments to the effect that children were segregated only for activities designed to meet specific needs or to correct specific defects. The trend is obviously toward having handicapped children participate in as many normal activities as their physical or mental limitations permit.

It is generally accepted that the cost of educating the physically handicapped will exceed that of educating the normal child. It is probably true that this excess cost will never be evaluated in terms of the educational product. Cities of sufficient size, however, with the ability to support special education appear to do so in relation to their need and their financial ability. The philosophy underlying the establishment of special classes for educational deviates may be summarized as follows:

1. That equal educational opportunity must be provided for all the children.
2. That the education provided for the children must meet the needs of the individual child.
3. That, in order to provide equal opportunity for such children, it is often necessary to segregate them for some instruction.
4. That by segregating pupils requiring special educational treatment, those of normal ability receive more teacher attention.
5. That the cost of special education cannot be measured in dollars and cents, but should be thought of in terms of the development of self-sufficient individuals. In many cases the education provided in special classes tends to prevent an individual from becoming permanently institutionalized. Above all, through an understanding of the needs of the handicapped, they develop increasing social competency.

New Research Service Announced

The California Teachers Association has announced the establishment of a new plan of CTA research service, according to Arthur F. Corey, state executive secretary. Patterned after the NEA Research Service, the plan became effective in September, 1950. The purpose is to provide more and better research service. Two plans are available: (1) *Comprehensive Research Service,* at $12 per year, includes all CTA research bulletins prepared during the year and a subscription to the *California Journal of Educational Research;* and (2) *General Research Service,* at $7.50 per year, entitles one to receive all CTA research bulletins published during the year. California sales tax must be added when such subscriptions originate within the state. Inquiries should be addressed to the California Teachers Association, 391 Sutter Street, San Francisco.

California State College Graduates—What They Do and Where They Go

VICTOR L. JEPSEN
Fresno State College

A STUDY recently conducted at Fresno State College on the present vocational status of its graduates throws some factual light on certain problems faced by the California state colleges today. Two of these problems, the functions and the areas served, are high-lighted to some extent by the material presented in this article.

Fresno State College Survey

The Fresno State College study investigates male graduates[1] of the years 1929-1941. Some data have also been obtained on the 1949 and 1950 male graduates, and this is included when available and pertinent. School records provide most of the material presented. Certain data were also obtained by letter or by oral interview from the 1929-41 groups. All in all, some 60 per cent, or 470, of the graduates participated. Included in the information received was quite complete data on teaching credential received, additional education since graduation, original home, present location, and present occupation.

What is the primary function of the California state colleges? The State Legislature in 1935 and again in 1947 defined this function as the training of teachers. Early in its history Fresno State College followed this primary function quite closely as the occupation of its early graduates clearly shows. In more recent years, graduates have tended to find other occupations in larger and larger numbers. Out of the entire graduating classes of 1929-41, about 370 of the 797 male graduates are now teaching. Approximately 387 or 48.5 per cent of the total group received their credentials on graduation. Sixteen per cent of these, or 127, dropped out of teaching while another 110 later entered teaching who did not originally receive a credential from the college. Net withdrawals of those certificated from the teaching ranks thus equals only about 2 per cent during the years 1929-1941. This figure would be radically altered by inclusion of female graduates.

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[1] The original study from which this article was taken concerned itself with male graduates only. Does this make the data more or less reliable in interpreting the total picture? A study was made of a pilot group of women graduates in order to determine whether deletion of these would alter the data materially. It was found that: (1) they came from and returned to areas in about the same proportion as the men, (2) more women than men by quite a large number, percentagewise, became credentialed for teaching, but that (3) many, many more women than men dropped out of the vocational picture entirely. The data without female graduates seems to present a more reliable all-around vocational picture of the graduates who are at work ten years later.

Dr. Victor L. Jepsen is associate professor of business administration at Fresno State College, where he has taught for the past four years. In addition to seven years of business experience, he has had previous teaching experience at both the high school and the college level. This article is based on data from Dr. Jepsen's dissertation, which was completed at Stanford University in 1948.

In terms of total numbers, then, the state college has been turning out during this time almost half of its graduates as teachers, a very satisfactory proportion. As indicated, early in Fresno State College history the graduates were predominantly teachers, but during the later years non-teaching graduates have predominated. Table I shows the varying proportions through the years.

TABLE I[2]

FRESNO STATE COLLEGE
PROPORTION OF TEACHING MALE GRADUATES, 1929-1950

Year Graduated	*Per cent of Non-teaching and Non-credentialed Male Graduates*	*Per cent of Teaching and/or Credentialed Male Graduates*
1929-35	9.0	91.0
1936-39	43.0	57.0
1940-41	67.0	33.0
1949	85.0	15.0
1950	75.0	25.0

[2] In order that the 1949 and 1950 percentages show an accurate picture of students preparing for teacher training at Fresno State College, the number of credentials issued by the State directly to the candidate must also be considered. It is estimated that the percentage might be increased by 10 per cent if accurate figures on the graduates making direct application were available.

Investigation of the records of those originally credentialed and later dropping teaching shows little significance. Neither does any out-of-the-ordinary characteristic stand out in the records of those not credentialed at graduation who subsequently became teachers. Probably the most important fact is that these two groups tended to balance each other. One item of interest is that not a single male non-credentialed graduate majoring in commerce later took up teaching, and only two non-credentialed music majors did so.

Postgraduate Study

How many of these graduates drop further educational activities upon graduation, and how many take additional units and acquire advanced degrees? What kinds of advanced degrees do they get? Such information may be of interest now that state colleges are granting Master's degrees. The following table shows the number of students, teachers, and others who did postgraduate work.

TABLE II[3]

POSTGRADUATE HISTORY OF THE
FRESNO STATE COLLEGE MALE GRADUATE, 1929-1941

Evidence of Graduate Study	*Graduates Replying* *Number*	*Graduates Replying* *Per Cent*
Some postgraduate work obtained	65	13.8
General Secondary Credential obtained	34	7.4
Administrative credential obtained	16	3.4
M.A. or M.S. degree obtained	70	14.9
Ed.D. or Ph.D. degree obtained	13	2.8
L.L.B. degree obtained	14	3.0
M.D. degree obtained	9	1.9
Other degrees earned	8	1.7
	229	48.9

[3] This table needs qualification. Many of those who reported advanced degrees may also have acquired credentials, but only the degrees were reported. Furthermore, in order to get a more exact figure for the additional education acquired by Fresno State College graduates, the percentage figures should be multiplied by the total graduates, or 797, rather than the number replying, which was 470.

Regional Function

Another vital function of the state college is to serve the region or area in which they are located. It is difficult to define too narrowly the needs of an area served. It is much simpler and this study is better adapted to show just what area the college does serve. That Fresno State College is supposed to serve primarily the needs of the San Joaquin Valley is implicit in the fact that it is the State-supported school for the Valley. Tables III and IV show where Fresno State College students come from and where they settle after graduation.

TABLE III

ORIGIN OF FRESNO STATE COLLEGE MALE GRADUATES, 1929-49

	1929-35		*1936-41*		*1949*	
Origin	*Number*	*Per Cent*	*Number*	*Per Cent*	*Number*	*Per Cent*
Greater Fresno	71	46	144	45	111	43
San Joaquin Valley	63	41	113	36	87	34
Outside Valley	18	13	60	19	60	23
Totals	152	100	317	100	258	100

Veterans, swelling the normal student body, no doubt account for a portion of the increased percentage of outsiders in 1949, but the actual rate of increase of outsiders from 1936-41 to 1949 was less than the increase rate between 1929-35 and 1936-41. Table III shows clearly that Fresno State College is a regional school, that approximately 80 per cent of the graduates originate in the San Joaquin Valley and that this proportion has changed slightly through the years.

Finally, where do the graduates of Fresno State College settle? The region benefits ultimately from the finished products which settle in the area contiguous to the college and the state college is considered probably most effective when it keeps its best talent close to home.

Since the teaching element has constituted the "primary" group at the college, it is desirable to discover its ultimate location. Dispersion of teachers is compared with total graduates and then shown separately in the following table.

TABLE IV

DISPERSION OF 1929-41 FRESNO STATE COLLEGE MALE GRADUATES

	1929-35		*1936-39*		*1940-41*	
Location	*Number*	*Per Cent*	*Number*	*Per Cent*	*Number*	*Per Cent*
ALL GRADUATES						
Greater Fresno	44	29	79	39	37	32
San Joaquin Valley	38	25	50	25	28	24
Outside Valley	68	46	74	36	50	44
Totals	150	100	203	100	115	100
TEACHERS ONLY						
Greater Fresno	38	28	47	40	8	22
San Joaquin Valley	35	25	29	25	12	33
Outside Valley	65	47	40	35	17	45
Totals	138	100	116	100	37	100

Probably any differences in percentages which show up during these years may be accounted for by economic conditions in the Valley. Significant is the similarity, during this long period, between percentages of teacher and non-teaching graduates. The dispersion of Fresno State College graduates seems remarkably stable. Significant also, as shown in Table V, is the comparison between the number of local graduates and the number still remaining in the area ten to twenty years later.

TABLE V

PER CENT OF MALE GRADUATES OF FRESNO STATE COLLEGE ORIGINATING IN AND REMAINING IN SAN JOAQUIN VALLEY

	1929-35	*1936-39*	*1940-41*
Originate	87.0	81.0	77.0
Stay	54.0	64.0	56.0

Conclusion

In conclusion, there is little doubt that Fresno State College is primarily a regional college and that the majority of students come from within a fifty-mile radius. Somewhat more questionable is any overemphasis on the assumption that today the primary purpose of the college is teacher training. If the purpose of the College is to serve the needs of the area, a simple analysis of the present occupation of graduates and a survey of vocational opportunities and teaching opportunities show that the teacher-training function, while certainly of vital importance, is now secondary to the need for other vocational and cultural training.

"Only 17 states require a bachelor's degree as a minimum requirement for elementary teaching. Nebraska still authorizes a high school normal certificate. Reports from several states show that requirements are lowest for rural elementary schools, especially one-teacher schools. Missouri, for example, issues certificates for rural schools on the basis of eight semester hours of college preparation, but requires 60 semester hours for an elementary school in a high school district and 120 semester hours for an elementary school combined with a high school. Yet if a distinction is to be made, it would seem more reasonable to insist on the highest requirements for teachers in one-room schools in isolated areas where they are often without benefit of supervisory help, adequate teaching aids, or stimulation from competent colleagues." — *(Excerpt from address by Francis S. Chase, Fourth National Conference of County and Rural Area Superintendents, October 12, 1949.)*

Upgrading Emergency Elementary Teachers In California

A. WINSTON RICHARDS
San Leandro, California

ONE of the gravest concerns of California educators today is the problem of the emergency teacher. County superintendents of schools reported that there were 13,038 emergency credentialed teachers serving in the classrooms as of October 31, 1948.[1] Although the supply and demand of secondary teachers is now in approximate balance, the shortage of fully qualified elementary teachers remains acute. We must look to an increase in the number of new, fully qualified teachers emerging from the teacher education institutions *plus* a program designed to upgrade the emergency teachers if there is to be any significant alleviation of the situation in the elementary schools in the near future.

The purposes of this study were to determine what is being done in the State of California to encourage and/or require emergency general elementary teachers to upgrade, and to discover the nature of educational opportunities available to emergency teachers seeking regular credentials. By means of three questionnaires, information was secured from 20 teacher education institutions, 49 county superintendents of schools, and 24 of the largest city school districts. In addition, the credential program of the State Department of Education was examined and the salary schedules of 23 large city school districts were analyzed.

The survey report is divided into four main sections which describe the programs of the State Department of Education, teacher education institutions, large city school districts, and the county superintendents of schools. Some of the more significant findings are described below.

The Program of the State Department of Education

The State Department of Education is constantly striving to encourage and facilitate the upgrading of emergency elementary teachers. The program of the Department in this respect has been expressed in four general areas:

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[1] Stone, James C., and Douglass, Aubrey A., "Teacher Supply and Demand," *California Schools*, XX, (April, 1949), pp. 89-103.

Winston Richards, for the past three years, has served as principal of the Thomas Jefferson Elementary School at San Leandro, California. His prior professional experience, all in California, included teaching and administration at Ontario, Dana Point, and Downey. His article is based on his Master's thesis, which was completed last spring at the Claremont Graduate School.

1. EMERGENCY CREDENTIALS

Controls governing issuance and use of emergency credentials have been tightened. Such credentials are now valid only in the county from which the statement of need originates, and the county superintendent of schools must certify that no qualified, regularly credentialed teacher of the type needed is available for the position.

2. PROVISIONAL CREDENTIALS

This credential was designed to encourage emergency teachers to upgrade. To qualify for the credential a teacher must verify at least two years of successful teaching experience on an emergency credential, have completed 60 units of college work, and must file a statement of intent to embark on a program leading to a regular credential. The provisional credential is valid anywhere in the State. Bi-annual renewal is contingent upon the completion of 12 units of college work.

3. BACHELOR OF EDUCATION DEGREE

This degree has been authorized for the state colleges as an adjunct to the provisional credential program. Prior education and experience are recognized in this flexible program.

4. INFORMAL VERIFICATION PROCEDURE

This procedure permits the teacher education institutions to evaluate the course work of candidates for regular credentials, prescribe additional course work, and, finally, to recommend to the State Department of Education that a credential be granted based upon the *minimum* requirements of the State. The informal verification procedure centers evaluation and guidance services in the teacher education institutions where they are easily available to emergency teachers.

The Program of the Teacher Education Institutions

1. FOR EMERGENCY GENERAL ELEMENTARY TEACHERS POSSESSING A BACHELOR'S DEGREE

Guidance. Ninety per cent of the teacher education institutions reported they advise emergency teachers that regular credentials may be obtained by meeting the minimum State requirements *or* by following the recommended program of the college. Guidance service through the informal verification procedure or by evaluation of transcripts of record is provided for emergency teachers by 95 per cent of the colleges; however, only 5 institutions reported employment of a credentials secretary or credentials counselor.

Special courses for emergency teachers. Each of the fourteen colleges reported having developed from one to seven special courses for emergency teachers. The titles of the courses were, in the main, similar to those used to designate regular courses. Forty-one different courses were listed, with the majority relating to the fields of curriculum, methods, and directed teaching.

Practice teaching facilities. The practice teaching facilities of 11, or 55 per cent, of the colleges are limited to students who are working for institutional-recommended credentials. Eight, or 40 per cent, of the schools reported that on-the-job supervision of emergency teachers, by college staff members, is offered as a means of meeting the directed teaching requirement. From *two* to *eight* credits per semester are granted for this type of supervised teaching.

Allowance of credit for successful teaching experience. Policies relating to credit allowances for teaching experience, as applied to institutional-recommended credentials, vary widely; approximately half of the institutions allow full credit for such experience, or at least waive the directed teaching requirement. The remainder of the colleges do not recognize successful teaching experience in any manner.

Minimum residence requirement. The minimum residence requirement for a recommended credential, over and above the bachelor's degree, was found to range from 9 to 30 semester hours. One institution reported, "No fixed number." In terms of time, the requirement varied from one semester to a full year. Several colleges expressed the period in terms of two or three *summer sessions.*

Summer sessions, extension and correspondence courses. All twenty of the teacher education institutions reported that summer sessions are offered as part of their program. Extension courses are offered by 13, or 65 per cent, of the colleges, and correspondence work is available through three of the tax-supported schools. Several colleges included statements to the effect that their summer session and extension programs were being expanded for the specific purpose of furthering the emergency teacher education program.

Acceptance of credits earned in summer session, extension and correspondence courses. The general acceptance of summer work on a par with regular courses is demonstrated by the fact that 18 institutions place no limitations on credits earned in this manner. However, the evaluation of extension credits varies from a maximum allowance of 12 units to full acceptance. Correspondence course work is limited to 6 units by the State Department of Education.

2. FOR EMERGENCY GENERAL ELEMENTARY TEACHERS NOT POSSESSING A BACHELOR'S DEGREE

B.A. programs for emergency teachers. In general, the Bachelor of Arts program has not been modified to meet the demands of emergency teachers. Only two of the colleges have lowered the residence requirement for emergency teachers, and most institutions have no accurate record of the number of emergency teachers enrolled in their B.A. programs.

B.E. programs in the state colleges. Six of the seven state colleges replying to the questionnaire offer the Bachelor of Education degree. No private institutions reported such a program. As with the B.A. course, the colleges do not appear to have an accurate record of the number of emergency and provisional teachers involved.

The Program of the Major City School Districts

Questionnaires were distributed to the 27 largest city school districts in California for the purpose of discovering their current practices and techniques designed to stimulate upgrading among emergency personnel. The replies of the 24 respondents, together with data extracted from the salary schedules of 23 of the districts, form the basis for this section of the report.

1. SALARIES OF EMERGENCY VS. REGULAR TEACHERS

Salary schedules were examined to ascertain the amounts being paid these two groups. In compiling the data, certain difficulties were encountered with respect to interpretation of the schedules. Therefore, the figures obtained should be considered representative of trends rather than findings of statistical accuracy.

Emergency teachers are recognized by a difference in the *minimum* salary by 13, or 56 per cent, of the districts. The differential ranged from $50 to $600, with the largest number of cases (5) providing a differential of $200.

Emergency teachers are recognized by a differential in the *maximum* salary by 20, or 86 per cent, of the districts. The amount ranged from $100 ot $1450. The median differential between the two groups was found to be $674.50.

Only two of the districts apply a differential to the annual increments awarded regular and emergency teachers. One district grants emergency teachers a $100 bonus for attending summer school.

One other salary factor was discovered which may encourage emergency teachers to upgrade. It is the addition of a separate salary bracket for holders of the *provisional* credential. The 1949-1950 schedules of 9, or 37½ per cent, of the districts contain this feature which pays provisional teachers a salary somewhere between that of emergency and regularly certificated personnel.

2. EMPLOYMENT PRACTICES

The districts released 432, or 40 per cent, of their emergency teachers at the close of the 1948-1949 school year. At the same time, these districts *retained* 292, or 18 per cent, *more* provisional teachers. Although some districts released provisional personnel, several reported retaining considerably more than were employed the year before. The gain is attributed to the upgrading of emergency teachers to provisional status. Reports revealed as many as 35 teachers changing status in this manner within a single city school district.

Emergency teachers are no longer employed by 4 of the reporting districts. Nine other districts had not employed additional (new to the district) emergency teachers at the time the questionnaires were returned (mid-summer, 1949).

3. COURSE WORK REQUIREMENTS

Thirteen districts (54 per cent of the total) *require* their emergency teachers to complete course work with a teacher education institution as a prerequisite to re-employment. The amount of work required per school year ranges from a flexible arrangement, presumably based upon the individual teacher's status, to fixed amounts varying from 6 to 10 hours.

4. OTHER PRACTICES

Several of the districts listed other practices intended to promote upgrading of their emergency personnel. These included persuasion, counseling, guidance, stressing the fact that emergency teachers cannot receive tenure, waiting until late in the summer to employ emergency personnel and arranging for extension courses to be held within the local area.

Program of the County Superintendents

Questionnaires were sent to each of the 58 county superintendents of schools and replies were received from 49, or 84 per cent, of the total. The purposes of this phase of the study were two: first, to discover whether emergency general elementary teachers are being required to complete course work as a prerequisite to re-certification and, second, to ascertain what other requirements, in excess of the minimum requirements of the State Department of Education, may have been applied to emergency teachers.

1. COURSE WORK REQUIREMENTS

Twenty-four, or 48.9 per cent, of the counties reported that course work with a teacher education institution must be completed as a prerequisite to re-certification. The requirement ranges from a flexible arrangement (7 counties) to a fixed number of units varying from 4 to 8 per year (17 counties). Three additional counties indicated that plans were being made for the initiation of a course work requirement.

2. MINIMUM EXPERIENCE AND/OR EDUCATION REQUIREMENT

Minimum education and/or successful teaching experience requirements have been established by 12, or 24 per cent, of the counties. The requirements were found to vary widely, depending upon the local supply and demand situation. Several of the counties have developed standards based upon various combinations of the education-experience factors, e.g., 2 years of college plus 2 years of teaching experience, *or* 4 years of college with no teaching experience.

Comments of many of the superintendents indicate that a close watch is being kept on the situation and that standards will be raised as quickly as the supply and demand situation will permit.

Summary and Conclusions

1. The State Department of Education is actively seeking to reduce the number of emergency teachers by limiting the usage of emergency credentials and encouraging emergency teachers to upgrade through use of the provisional credential.

2. The State Department of Education is assisting the colleges and universities as well as emergency teachers by (a) authorizing State Colleges to grant the B.E. degree, and (b) encouraging all teacher education institutions to handle guidance and evaluation procedures incident to credentials based upon the minimum State requirements.

3. The employment of a credentials counselor by each of the teacher education institutions would ease the burden of guidance now resting upon the shoulders of faculty members and should provide a superior service to emergency teachers.

4. The extension of practice teaching facilities to all students, rather than just those that are working for a recommended credential, would assist emergency teachers who wish to qualify for a regular credential by meeting only the minimum State requirements.

5. The values related to on-the-job supervision of emergency teachers, by college staffs, to meet the directed teaching requirement should be investigated. If such supervision is productive of good results, the program could well be expanded.

6. More uniformity among the colleges with respect to minimum residence requirements, allowance of credit for successful teaching experience, application of extension work to requirements for a recommended credential, the titling of standard education courses and the major and minor field requirements seems desirable.

7. The fact that most teacher education institutions do not know how many emergency teachers are enrolled in their B.A. program would seem to indicate that special problems which confront emergency teachers are not receiving full attention.

8. The program of some colleges aimed at taking extension and summer courses to rural, remote areas should materially benefit certain emergency teachers *provided* that high standards of instruction are maintained.

9. Cities and counties which require emergency teachers to complete course work with a teacher education institution as a prerequisite to recertification are to be commended for their forthright effort to upgrade their emergency personnel.

10. County superintendents of schools who have established minimum education and/or experience requirements are contributing to the raising of emergency teacher standards. Their action should be of particular significance to the small, rural schools where the shortage of qualified applicants makes it difficult for boards of trustees to secure good teachers.

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